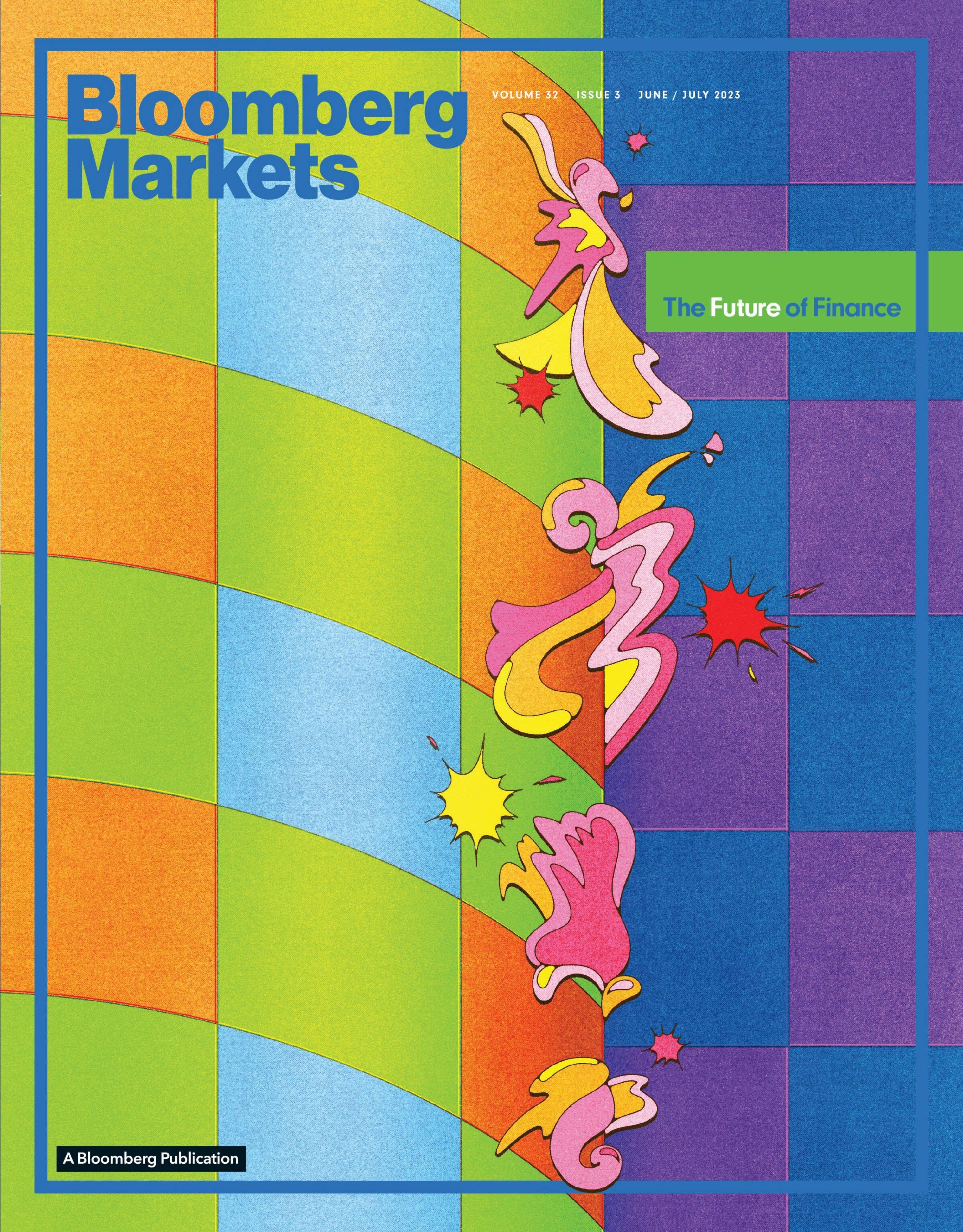
# Bloomberg Markets

VOLUME 32 ISSUE 3 JUNE / JULY 2023



## The Future of Finance

A Bloomberg Publication

VISIT…

LANZAROTE
Caliente.com

WHAT IF AN IDEA COULD BECOME YOUR GREATEST ASSET?
How we invest today is how we live tomorrow.
juliusbaer.com
Julius Bär
YOUR WEALTH MANAGER

Bloomberg
Markets

VOLUME 32 ISSUE 3 JUNE / JULY 2023

COVER ARTWORK BY
**KATE DEHLER**

**60** **The Path Ahead for UBS and Its CEO-in-Waiting**
Buying Credit Suisse creates new challenges for the Swiss banking giant and its wealth management chief, Iqbal Khan
*By Myriam Balezou*

**64** **Fintech's Plumbers**
Plaid's digital pipes connect bank accounts to thousands of financial applications. What's next for the $13.4 billion company?
*By Jenny Surane*

**70** **Warehouse Windfall**
One of Blackstone's best real estate trades required getting to know some of Europe's scruffiest properties
*By Jack Sidders*

*Corrections to the April/May issue:*

In "The New Finance Rich List" (page 60), Interactive Brokers Group Inc. was misspelled in the entry for David Siegel. In "Take the Money and Run" (page 72), Maikol Di Pietro's name was misspelled.

# Contents

*QuickTake*

5 **Open Banking**

*Surveillance*

7 **What's the Biggest Change Coming to Wall Street in The Next Five Years?**

*Forward Guidance*

11 **Banks Are Roaring Back In Xi's China**

*<GO>*

14 **Fresh Talent**
Celebrating with Morgan State University graduates

16 **In Search of a Better Hedge**
Retired trader Chas Mancuso says he has a simpler alternative to Treasury futures

18 **Using AI in Japanese M&A**
Shunsaku Sagami finds a novel way to broker deals for companies that lack successors

20 **ESG Debt Grows Up**
A rough 2022 led to better disclosure by green bond issuers

22 **Global Banks Hit a Wall In China**
The business opportunities aren't what they once seemed

24 **The Saudi Pay Premium**
Moving to Riyadh is one way for bankers to boost their bonuses

26 **Q&A With BlackRock's Wei Li**
The investment strategist talks about her career and what she sees coming next

*FFM*

32 **Q&A With Metacapital's Deepak Narula**
The hedge fund veteran sees an unusual opportunity in agency mortgage-backed securities

36 **AI Tips and Tools**
How to use artificial intelligence on the terminal

40 **Crypto Fundamentals**
Token Terminal data can help you analyze blockchains and other crypto projects

42 **Spending Spree**
Find industries and companies that benefit from splurging consumers

44 **Energy Transition**
Track how a major power company is adapting

46 **Bitcoin Technical Analysis**
Apply Heikin-Ashi, stochastic RSI and vol bands to crypto

49 **Factor Exposures**
See what's working in a fund and analyze its tilts

52 **Create a Factor-Based Strategy**
Save time by automating the rebalancing of a model portfolio

*Stopovers*

76 **When in ... Miami**
Luxury property agent Oren Alexander provides some local pointers

79 **Cheat Sheet**
The most important functions you should know about right now

80 **The FFM Quiz**
Test your market knowledge

WHEN OPPORTUNITY STRIKES
TAKE ACTION

Capturing opportunities can be like catching lightning in a bottle. With groundbreaking technology, unique data insights and 24-hour access to innovative products across all major asset classes, CME Group can help you seize opportunities at precisely the right moment.

VISIT CMEGROUP.COM/OPPORTUNITY

CME Group

Derivatives are not suitable for all investors and involve the risk of losing more than the amount originally deposited and profit you might have made. This communication is not a recommendation or offer to buy, sell or retain any specific investment or service. Copyright ©2022 CME Group Inc. All rights reserved.

# The Future of Finance

Please take a moment to appreciate Kate Dehler's stunning cover illustration. Once again, our design director, Josef Reyes, has found an artist able to depict a challenging theme without resorting to cliche. What could be more difficult to illustrate than the future? And yet Kate's clever, joyful work succeeds in showing seismic forces colliding—could they be inflation, AI or shifting monetary policy?—and the wreckage they create. We can't see the future, but we know big changes are coming that will affect companies, people and countries.

Finance is always evolving, so this issue focuses on some of the characters and companies trying to stay ahead of those disruptive trends. In Zurich, for instance, Myriam Balezou reports on how UBS will digest its huge takeover of longtime rival Credit Suisse and what it will mean for Iqbal Khan—who many insiders see as UBS's chief executive officer-in-waiting (page 60).

San Francisco-based Plaid has built the digital pipes that connect banks to more than 8,000 financial apps, gaining a $13.4 billion valuation in the process. As Jenny Surane reports, the company has a complicated frenemy-type relationship with many of the banks it serves (page 64).

In London, Jack Sidders describes how an unlikely group of "shed heads" assembled a database of UK and European warehouses that enabled investment giant Blackstone to create a new—and highly profitable—asset class (page 70).

We hope you find this issue insightful and informative. And, as always, we welcome your feedback.

**Christine Harper**
Editor

**Editor**
Christine Harper
**Design Director**
Josef Reyes
**Features Editor**
John Hechinger
**FFM Editor**
Jon Asmundsson
**Graphics Editor**
Mark Glassman

Bloomberg Markets *draws on the resources of Bloomberg News, Bloomberg TV,* Bloomberg Businessweek, *Bloomberg Intelligence, Bloomberg Economics, BloombergNEF and Bloomberg LP.*

**Editor-in-Chief**
John Micklethwait
**Deputy Editor-in-Chief**
Reto Gregori
**Advisory Board**
Sree Bhaktavatsalam, Stephanie Flanders, Heather Harris, Silvia Killingsworth, David Merritt, Chris Nagi, Jenny Paris, Michael Patterson, Emma Ross-Thomas
**Creative Director**
Christopher Nosenzo
**Photo Director**
Donna Cohen

**Managing Editor**
Kristin Powers
**Copy Chief**
Lourdes L. Valeriano
**Copy Editors**
Brennen Wysong, Nick Mullan
**Production Manager**
Susan Fingerhut
**Map Manager**
Ilse Walton
**Production Associates**
Karen Butcher, Loly Chan, Nicole Jordan

**Production/Operations**
Steven DiSalvo, Debra Foley, Thomas Gambardella, Dan Leach, Daniel W. Murphy, Carol Nelson, James Outhwaite
**Global Head of Advertising and Marketing**
Stephen Colvin
**Head of US Sales**
Anthony DeMaio
**Head of APAC Sales**
Sunita Rajan
**Head of Europe Sales**
Duncan Chater
**Head of Middle East and Africa Sales**
Amit Nayak

For advertising inquiries, go to bloombergmedia.com

*comments@bloombergmarkets.com*

# Buzzword

By AISHA S GANI

## OPEN
## BANKING

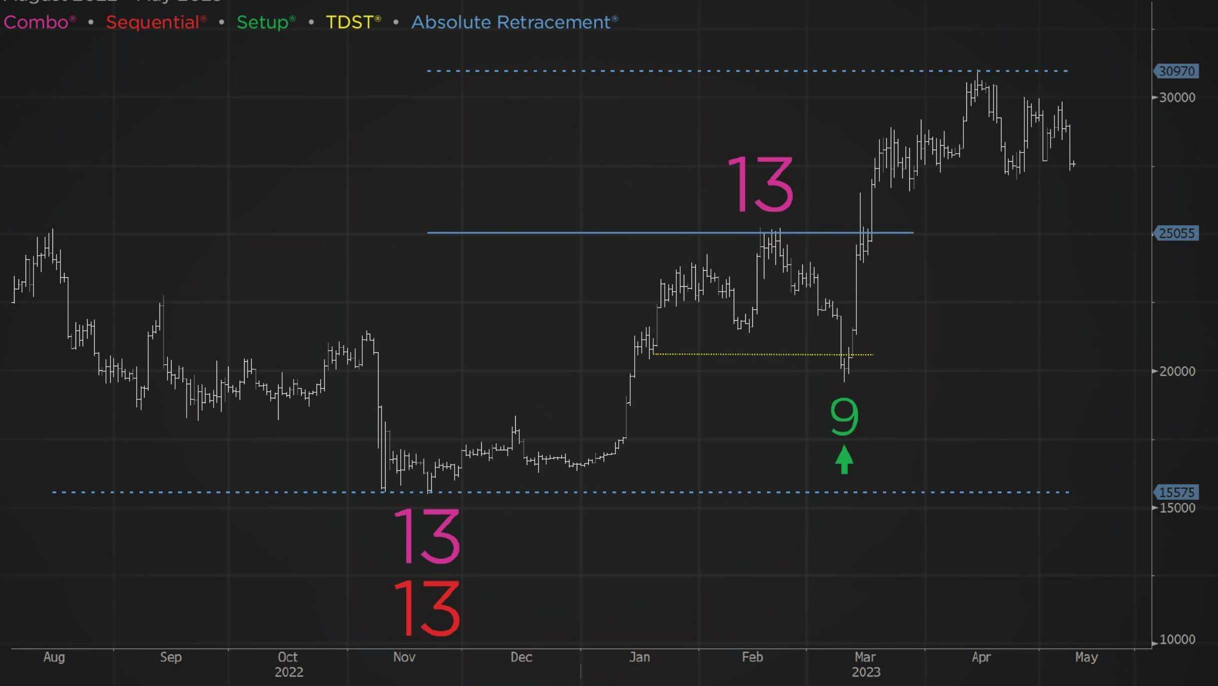
**DO YOU CHECK** all of your account balances on one app, or use digital wallets like Venmo to shoot money to friends? Welcome to the world of open banking, made possible by banks sharing data with financial technology companies that offer payment, budgeting and other services to consumers. UK regulators launched open banking in 2017 to spur competition. The country's dominant banks were required to open their computer systems so customers could give fintechs secure access to their data. Today more than 70% of digitally active UK adults use a fintech service, according to a government-commissioned review of the country's fintech.

By 2027 the global value of transactions enabled by open banking will exceed $330 billion, up from $57 billion in 2023, according to Juniper, a digital technology market researcher. While third-party apps and websites that use open banking aren't regulated by government watchdogs everywhere yet, markets around the world are catching up fast with Europe and the UK. In the US, however, adoption has been held back by pushback to regulatory efforts. Some banks, for their part, are uneasy about the risk of fraud and don't want to cede their customer relationships to rivals. The rapid drain of deposits from US regional banks in March also spooked some bankers and regulators. Still, the technology behind open banking could prove useful for a wide range of consumer-focused apps. The next step—already gaining ground—is open finance, which makes use of a customer's data to offer and manage mortgages, savings products, pensions, insurance and consumer credit. ●

---

Gani is a fintech reporter for Bloomberg News in London.

# When the Fundamentals Are Unclear ...



**Bitcoin**

August 2022 - May 2023

## Look to the DeMARK Indicators®

**DeMARK Service for Bloomberg | DeMARK Re/Search 2.0 | DeMARK Bundle**

For decades, DeMARK® has been the definitive name in market timing and analytics. Now, traders are finding opportunities in crypto markets in addition to global equities, futures, interest rates, Forex, and even economic data. Discover why the biggest names in trading and investing trust DeMARK. For more information, or to start your 30-day free trial, type DEMA<GO>.

DeMARK.com

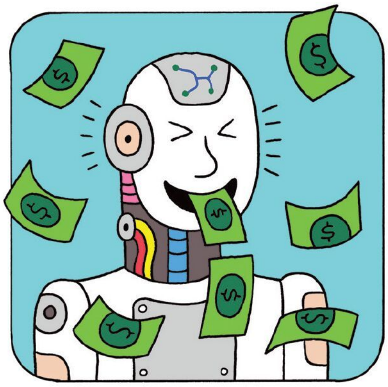
DeMARK®

By MAX ABELSON

# What's the biggest change coming to Wall Street in the next five years?

**IF YOU ASKED** the smartest people in the room late last year what was about to happen inside the US banking system, exactly none would've predicted the chaos to come. So our panel of experts is taking a distinct risk in trying to answer an even harder question. Their responses have been edited for length and clarity.

ILLUSTRATIONS BY ANDY REMENTER



## Kim Posnett

*Global head of technology, media and telecommunications banking at Goldman Sachs Group Inc.*

Machine learning and artificial intelligence will transform the financial-services industry. Business executives, investors and advisers will be able to understand and interpret massive data sets very quickly and easily, allowing them to make much more informed, efficient and better decisions across M&A, financings, asset allocation and much more. There will be a dramatic change in the usage and impact of predictive analytics, which we are already starting to see, but have only just scratched the surface in terms of possibilities.

## Mary Jo White

*Partner at Debevoise & Plimpton and former chair of the US Securities and Exchange Commission*

AI comes to Wall Street and never leaves. AI-enabled anti-money-laundering tools will be autonomous and interact directly with regulators, detecting unlawful transactions and automatically reporting them to the SEC's AI market surveillance bot, which will automatically respond.

## Nathalie Molina Niño

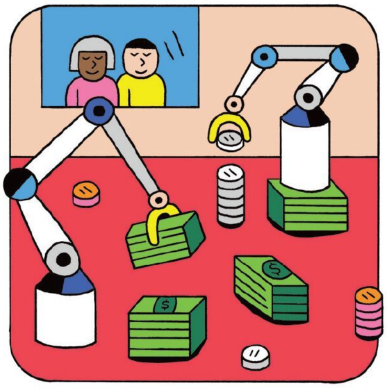
*Co-founder and chief strategy officer of Known Holdings LLC*

Capital, globally, is concentrating in surprising places. Private fortunes that dwarf public money are moving into the hands of younger, more conscientious hands that increasingly reject the extractive capitalism of their fathers and grandfathers.

## Aren LeeKong

*Vice chairman of global credit and head of direct lending at Carlyle Group Inc.*

I remember when I first walked onto a trading floor in the late 1990s and saw a sea of bodies. Within five years, that number was cut by a third by the tech bubble bursting, 9/11, a slowing economy and the rapid evolution of technology. I see similarities today. As advances in artificial intelligence take hold, previously highly valued and differentiated tasks will be executed with amazing efficiency and timing gains by AI. Firms will be able to rely on a smaller group of executives, and they will need to be more creative about how they differentiate themselves to stay relevant. Diversity of thought, perspective, experience and background will not be nice to have—it will be an essential part of success as these changes take hold.



### Kelly Ifill

*Founder and chief executive officer of digital banking and networking platform Guava*

Given recent events and subsequent volatility across the financial sector, small businesses are rethinking their banking partnerships. Because of this once-in-a-generation response, I believe that neobanks will step in now to become the new community banks, providing a more personalized experience for customers and playing a pivotal role in providing greater access to capital, guidance and advisory.

### Joyce Chang

*Chair of global research at JPMorgan Chase & Co.*

Digitization, decentralized finance, the metaverse and AI will redefine the role of the centuries-old transactional middleman. The technology is progressing faster than expected and will be critical to future success across risk, prospecting, marketing, customer experience and fraud prevention. As much as AI can empower our capabilities, we also have to prevent unintended consequences through misuse.

### Tom Glocer

*Lead director at Morgan Stanley and chairman of financial technology startup Capitolis Inc.*

The change that needs to occur in the US financial system is a fundamental rethink of how we balance the maturity transformation and credit underwriting function of banks with ensuring the availability of demand deposits. The change that is more likely to occur over the next five years is a further tightening of capital standards, including the adoption of Basel end-state capital requirements [the final minimum capital rules agreed upon by the Basel Committee on Banking Supervision].

### Lisa Donner

*Executive director of Americans for Financial Reform*

Wall Street will face renewed scrutiny from the American public about the privileges it enjoys thanks to a political system that for far too long went along with what the industry wanted, no matter the costs to the rest of us.

### Robert Reich

*Professor at the University of California at Berkeley and former secretary of the US Department of Labor*

Five years from now, Wall Street will have ceased to exist. Trading will have become so decentralized and global, and so dominated by AI, that no one will refer to the Street except in historic (and not entirely favorable) terms.

—*With Sridhar Natarajan*

*Abelson reports on finance for Bloomberg News in New York.*

There's a reason you want the Bloomberg Terminal®.

It's more than a symbol of success – it's how you succeed. The Terminal delivers powerful, reliable data, market-moving news and research and the best messaging app in the financial world, all on one iconic system that's primed for volatile times ahead. Your business is complex, but this choice is simple. **Think bigger with the Bloomberg Terminal.**

Learn more at
bloomberg.com/terminal

Bloomberg

# In China, Banks Are Back

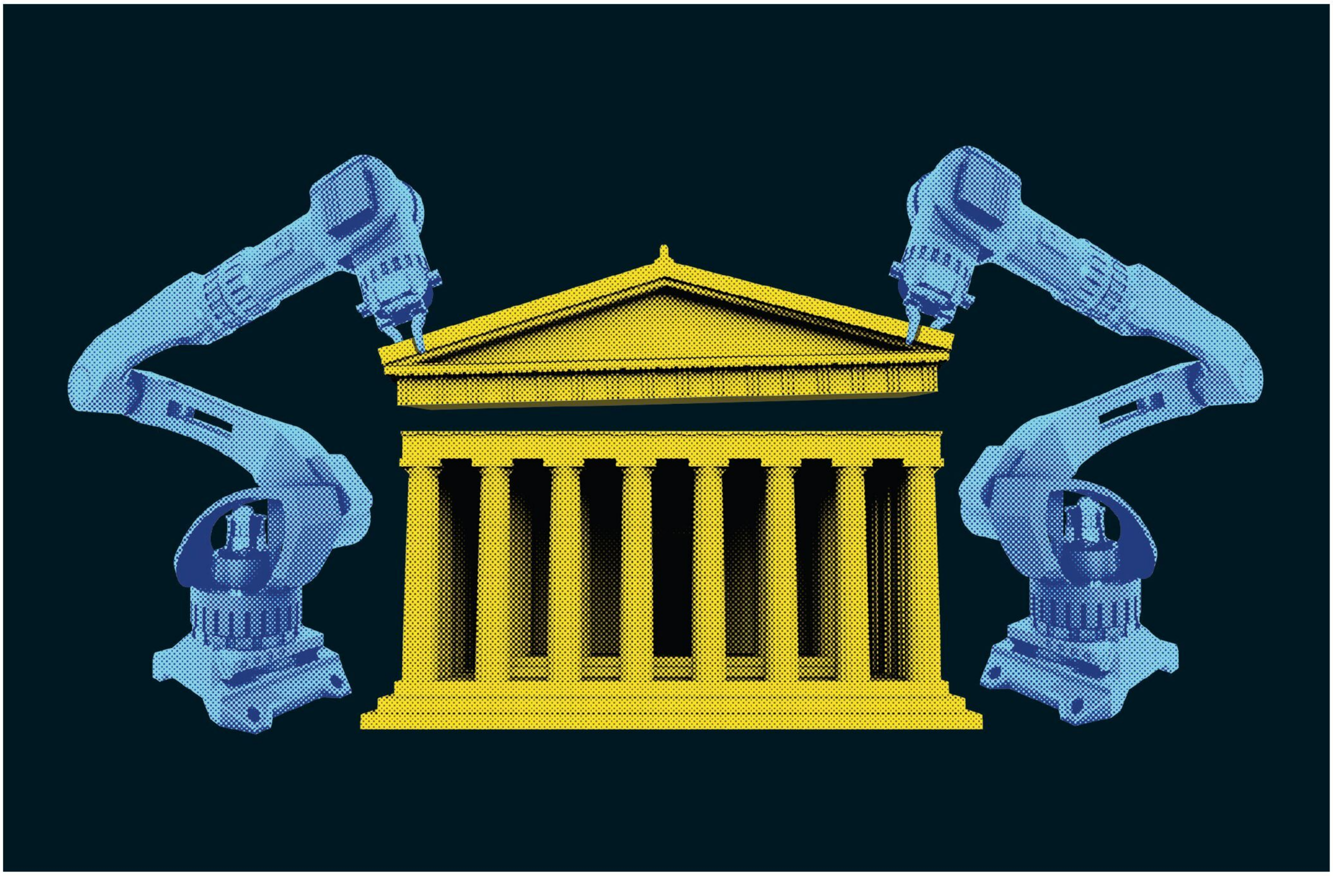
By SHULI REN

ILLUSTRATION BY MATT CHASE

**OPTIMISM WAS EVERYWHERE** in China's finance circles back in 2014. E-commerce giant Alibaba Group Holding Ltd. wowed the world by raising $25 billion in New York. A new cross-border trading link let Chinese investors buy Hong Kong-listed stocks and foreigners trade mainland shares. Global index providers raced to include Chinese bonds and stocks in their benchmarks.

International asset managers' China holdings exploded, from $753 billion in 2014 to $8 trillion at their peak in 2021. The thinking was clear: With the entry of Wall Street banks and a few more policy reforms, China's financial markets would mature and allocate capital more efficiently.

That optimism is proving misplaced. President Xi Jinping's policy pivot toward upgrading the industrial sector has placed capital-market developments on the ►



back burner. For the inefficient, largely state-owned banking industry, however, things are looking up.

**IT'S A ZERO-SUM** game. The boom in asset management and the growing diversity of channels for raising capital posed a structural threat to banks, which to this day finance more than 60% of China's economy. Since 2015 the People's Bank of China has maintained its benchmark deposit rate at an artificially low 1.5%, allowing the country's famously frugal households to be lured away by wealth products that offered higher rates. In 2017 a repository for leftover cash from online spending set up by Alibaba's fintech affiliate, Ant Group Co., became the world's biggest money-market fund, with assets hitting $270 billion. It offered a yield of more than 4%.

Banks were also seen as ineffective financiers, unwilling to lend without collateral and failing to pass lower policy rates on to borrowers. Unlike in the US, where key bank lending rates track Treasury yields, loan officers and bond traders in China live worlds apart. In 2019 the government set a new reference rate for bank loans, just so the PBOC could strengthen the transmission of its monetary measures to the real economy.

Fast-forward to the next decade: Despite their inefficiencies and inadequacies, banks will probably thrive, if only because they're best positioned to fund the government's industrial development ambitions. Since the US-China trade war began in 2018, Xi has steadily pushed for the country to become technologically self-reliant, building its capabilities in areas such as semiconductors, smart manufacturing, artificial intelligence and biotech.

**FINANCING HIGH-END** manufacturing takes a lot of patience. Take Contemporary Amperex Technology Co., which dominates the global supply chain for electric vehicles, making its long-term future seem bright. But it's still in a highly cyclical business. After two years of meteoric gains, shares of Chinese EV and battery makers have lost about 50% of their market value from their late 2021 peak. This is in part because battery inventory is at an all-time high, equivalent to 200 days of demand in China, according to Bernstein Research. As such, the current supply glut will take some time to absorb, and battery stocks are only trading at 10 to 20 times earnings despite a strong long-term outlook.

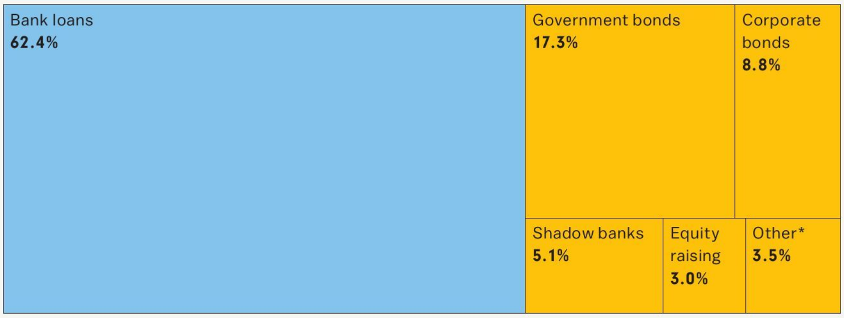
This explains why banks are a natural fit to finance such high-end manufacturing. Unlike fund managers, who have to worry about day-to-day market returns and client redemptions, banks can take a more long-term perspective.

Diminished appetite for risk, such as early-stage equity financing, is also a factor in China. While venture capital has expanded its holdings in the industrial sector since 2018—manufacturing as a percentage of VC investments grew from about 33% in 2017 to 72% last year—the checks that venture capitalists are willing to write are much smaller. Whereas the average investment size for, say, real estate was over $600 million, it's about $100 million for semiconductors, machinery and biotech, according to data provided by the Centre for Asia Private Equity Research Ltd.

After all, some of these funds are still recuperating from hefty losses. They witnessed firsthand how billion-dollar investments in online education startups were wiped out overnight. Beijing has a track record of making sudden policy U-turns, so it's better not to place too many eggs in the same basket and be caught overextended again.

**Banks Dominate Funding**

Share of total financing in China, March 2023



*Figures add up to more than 100% because of rounding. *Miscellaneous financing options such as asset-backed securities.*

**Source**: People's Bank of China

**THE PICTURE IS** even less rosy in the corporate debt markets. Bond traders are simply unwilling to fund China's manufacturing ambition. The government's deleveraging campaign, which began in 2018, ensnarled industrial companies even earlier than highly leveraged real estate developers. It's a testament to just how capital-intensive these firms are, and how quickly they can slip into distress.

The most prominent case was the default of Tsinghua Unigroup Co. in late 2020, about one year before China Evergrande Group, the world's most indebted builder. Unigroup was the closest thing China had to Samsung Group, the South Korean semiconductor conglomerate. Housed among its 250-some subsidiaries was Yangtze Memory Technologies Co., one of just a handful of domestic chipmakers within striking distance of the global leaders. Last year the company was placed on Washington's lengthening US trade blacklist.

And yet there was no government bailout. Beijing allowed an apparent national champion, incubated by a top university that also happens to be Xi's alma mater, to fail. That alone broke a few patriotic traders' hearts. They learned that discarding fundamental credit analysis and co-investing in so-called strategic areas is a losing game.

After three years of Covid Zero's snap citywide lockdowns and two years of regulatory crackdowns, global investors are asking if China's entrepreneurs have lost their animal spirits and consumers are scarred. The same question should be posed to the country's traders and asset managers: Do they still have faith in China's financial future?

**WHAT'S LEFT ARE** the good old banks. In the past five years, loans to industrial companies more than doubled, to 19 trillion yuan ($2.7 trillion) as of the end of March, far outpacing those to real estate developers. Industrials and related trade sectors accounted for about 20% of the economy's total new financing last year, up from just 4% in 2017. Clearly, factors other than economics are contributing here. In China, the government often relies on so-called window guidance—verbal orders to lenders—to speed up lending to strategic areas.

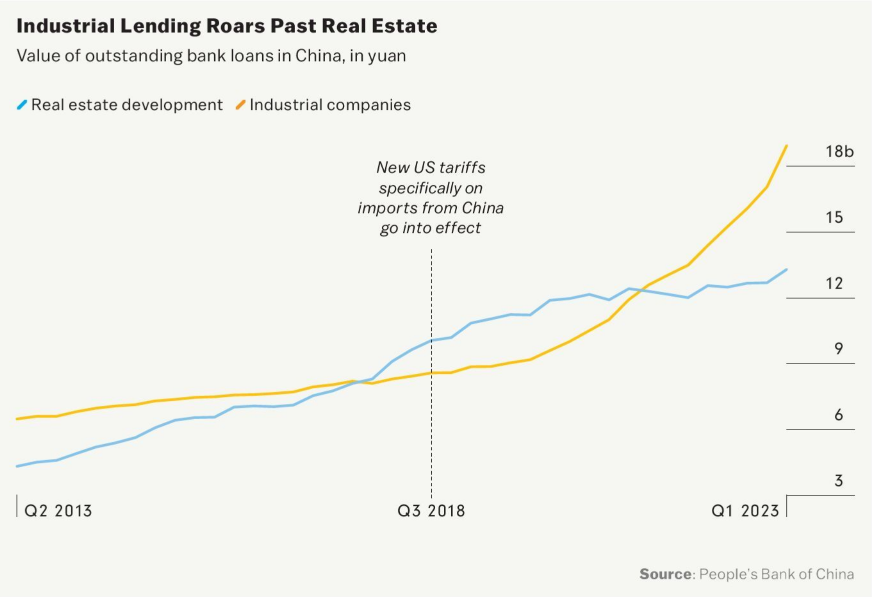
Meanwhile, banks' funding pressures are easing, helping to solidify their dominance. They no longer have to fret about deposit outflows, after consumers learned through unfortunate experience that other types of seemingly safe investments can backfire.

Late last year, Beijing announced an easing of its Covid policy and vowed to stabilize the property market. That led to expectations of a growth boom, and bond yields spiked. Many wealth management products that invested in government securities and high-quality corporate debt incurred large paper losses on their holdings. By December, more than one-fifth of these investments "broke the buck," reporting assets worth less than their face value.

Chinese savers fled. The 1.5% they could get from a one-year-term deposit at banks wasn't generous, but it was better than losing money. Household deposits as a percentage of the economy's funding source recovered to 42%, up from 36% in 2017, when Ant's money-market fund drew savers.

**FOR YEARS, BEIJING** has been trying to diversify its financing channels, hoping to expand beyond hard-to-price bank loans to capital raising in the public sphere. In 2019 the government launched a Nasdaq-style tech board in Shanghai, allowing startups to go public faster. More registration-based initial public offering reforms followed, all designed to help tech firms tap the equity market.

In the past three years, more than 60% of equity raising on the Shanghai and Shenzhen stock exchanges went to the manufacturing sector. These firms now account for more than half of mainland bourses' market cap.



**Industrial Lending Roars Past Real Estate**

Value of outstanding bank loans in China, in yuan

**Source**: People's Bank of China

However, from a macro viewpoint, these improvements are tiny and negligible. Bank loans are even more prevalent now, accounting for 63% of the economy's total financing, from a low of 58% in 2017. Meanwhile, the share of funds raised via equity and corporate bond issues, which the government hopes to develop, has remained stagnant at about 12%.

Lenders are able to reclaim the crown in part because of regulatory crackdowns on so-called shadow banking—and the entire financial system is safer because of that. Although it's a pity that public markets aren't able to step into its place.

**A NATION'S FINANCIAL** future has a lot to do with the nature of its economy. A consumption-oriented society, such as the US, gives rise to a more diverse ecosystem of funding options. Consumers may feel more comfortable trading Big Tech stocks. They use Amazon.com, Apple and Netflix and can form investment views based on their personal experiences.

The opposite is true in China, where the government thinks an industrial upgrade, rather than domestic consumption, will drive the economy in the future. The development of its capital markets is thus necessarily slowed. It's difficult for asset managers—not to mention retail investors—to pick winners out of thousands of small, highly specialized manufacturing firms. It's a costly, labor-intensive endeavor.

To be sure, banks' rising dominance doesn't mean bankers are having a good time. Policy-driven loans have eroded lenders' operating margins, and the biggest firms are periodically asked to bail out their smaller, failing regional peers. As a result, their return on equity has been halved, from more than 20% a decade ago to 9.3% in 2022.

Knowing their outsize economic might, Xi needs to ensure that bankers behave. His powerful anticorruption czar inspects big state-owned financial institutions regularly, promising to catch "tigers" and "flies" alike and cracking down on a wide range of offenses from bribery to dereliction of duty. Xi is cutting bankers' pay, too. With youth unemployment at 20%, millions of fresh university graduates are waiting to join the profession at a fraction of the prevailing compensation.

This underscores that banks have become public utilities. Do utilities know how to pick national champions better than professional asset managers?

As long as the government's industrial drive continues on steroids, banks have nothing to worry about. No one else is racing them to fuel Xi's ambitions. ●

---

Ren is a Bloomberg Opinion columnist covering Asian markets. This column doesn't necessarily reflect the opinions of Bloomberg LP and its owners.

Beta Alpha
James Brown
ΑΦΑ
BETA ALPHA CHAPTER
FALL 2022
DEUCE
PAID IN FULL
MORGAN
CLASS
2023

GAN
VERSITY
C
A
S
A

# Fresh Talent

PHOTOGRAPH BY KAREEM BLACK

**WITH SO MUCH HYPE** about how artificial intelligence will change finance, it's good to remember the essential role of human energy and creativity. At left, Johvante Brown, 21, received his bachelor's degree in business administration—cum laude—at Morgan State University's 146th spring commencement on May 20. The Brooklyn native says he now plans to pursue an MBA at Morgan State's Earl G. Graves School of Business & Management before seeking an operations or marketing role in the tech world. Founded in 1944, the Baltimore-based Graves School focuses students on the future with a capital markets lab and centers dedicated to fintech, data analytics and innovation and entrepreneurship. To see the most viewed people on the Bloomberg terminal, type **{MVP <GO>}**. —*Christine Harper*

# A Retired Trader's Quest to Make Hedging Treasuries Simpler

By ELIZABETH STANTON

**CHAS MANCUSO SPENT** the first 20 years of his Wall Street career learning the head-spinning ins and outs of Treasury bond futures and teaching customers how to make money with them. He's spent the past seven years on a crusade for a better way.

The 59-year-old former trader, who moved from New York to Myrtle Beach, South Carolina, in 2016, could devote all his time to golf, pickleball and flipping town homes if he chose to. Instead he spends hours on the phone and in meetings trying to convince Wall Street dealers—his former customers—as well as institutional investors and regulators that the gargantuan US government bond market should scrap the risk-hedging mechanism the Chicago Board of Trade created in 1977 in favor of the simpler one he devised. Mancuso and his partners at Next Level Derivatives LLC have secured patents and a list of prominent backers for what they call Treasury Risk Forwards, or TRFs (pronounced "turfs") for short.

To say it's a heavy lift is an understatement. The current system is a golden goose for CME Group Inc., the Chicago-based exchange operator that swallowed the Board of Trade in 2007. But in the past decade, the Treasury market has been rocked several times by episodes of dysfunction, giving rise to regulatory scrutiny. The emerging consensus among regulators is that requiring central clearing of trades—a post-trade process in which gains and losses cancel each other out—can help avert future breakdowns.

Mancuso says he views the regulatory ground-shifting as a chance to pull off an historic upset. Treasury Risk Forwards—for which Next Level Derivatives is seeking approval from the US Securities and Exchange Commission—could be centrally cleared alongside Treasury securities in a way that CME futures are not, averting the need for a regulatory mandate.

"There are frailties that need to be addressed," Mancuso says. The Treasury market "is not as bulletproof as we had hoped."

**MANCUSO IS WIDELY** known in the US interest-rate markets. He grew up in the New York City borough of the Bronx and Ridgewood, New Jersey, and studied business administration at Fordham University, aspiring to make a fortune as a Wall Street trader. Eventually he fell in with the legendary team of Stan Jonas and Pierre Wolf at Fimat USA Inc., a powerhouse in fixed-income derivatives. He worked there for almost a decade, until the financial crisis began to unfold in 2007.

Over the next several years, he took on a couple of special projects, including an unsuccessful one for the New York Stock Exchange that he says prematurely wrestled with the same problem Treasury Risk Forwards try to address. He traded for his own account and started making real estate investments around Myrtle Beach. But he came back to the question of how to reinvent Treasury futures.

Institutional investors use Treasury futures to change the amount of risk they're taking without having to buy or sell bonds, which can be time-consuming and costly. For example, a fund manager seeking to protect her portfolio from rising interest rates can sell futures as a hedge. Futures have some key trading advantages over actual bonds—speed, anonymity and leverage, to name a few. As of May, CME's six main Treasury futures contracts numbered more than 15 million, representing about $1.8 trillion of underlying bonds. "The success of Treasury futures speaks for itself," says Agha Mirza, CME's head of interest-rate and over-the-counter products.

Prior attempts to storm the castle have ended in failure. In 2004, Eurex AG introduced a competing product and gave up a year later. But the amount of Treasury debt has since grown fivefold, to more than $24 trillion, and the emergence of lightly regulated automated trading outfits that compete with the once-dominant Wall Street dealers has made interactions riskier. A principal hedging tool so complicated that pricing it is a rarefied skill, even within the sophisticated community of bond traders, has become a dangerous liability, Mancuso says.

**THE YIELDS OF** the most recently issued Treasury notes and bonds are among the most widely recognized metrics in global finance, but they're almost completely disconnected from the futures market. Treasury futures oblige a buyer (a "long" in futures parlance) to take delivery from a seller (a "short") a specified quantity of notes or bonds. The contracts define the characteristics of deliverable securities, and several typically qualify. Traders identify the one that's cheapest to deliver (CTD), and the futures contract tracks that one—in price, not yield, terms.

For esoteric reasons, the CTD Treasury securities for futures have for years been older notes and bonds that, except for their value as deliverable securities, would be of little interest to the market. For the June 2023 10-year note contract, the CTD security as of mid-May was a seven-year note issued in January.

"It's not an optimal design," says Darrell Duffie, a professor of finance at Stanford University who specializes in Treasury market structure. "If you were to start from scratch, you'd do something cleaner." Still, he adds, "we're nowhere near the end of the life of CME futures contracts, which are extremely heavily used by investors—which may be because there's nothing better."

**TREASURY RISK FORWARDS**, which Mancuso formulated in 2014, aspire to be better.

TRFs are yield-denominated agreements to deliver (or take delivery of) the next Treasury security to be issued of a given maturity. For example, a 10-year note auction such as the one in May, which produced a yield of 3.448%, would have been profitable for those who set longs in the forward contract at a yield level higher than the auction's, and vice versa.

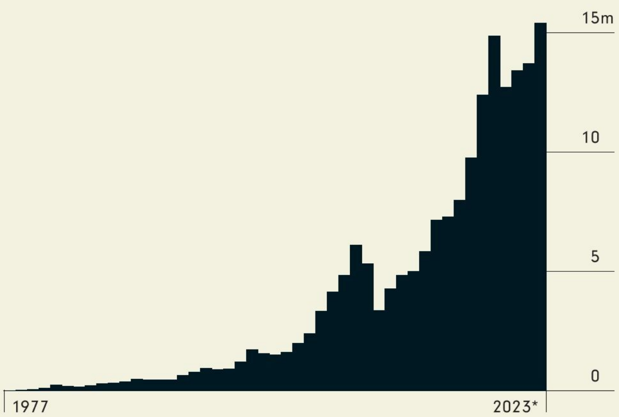
Such a market already exists in a limited way. In the "when-issued" market, professionals buy or sell new Treasuries before the government auctions them. They keep track of their gains and losses by comparing the when-issued yield at which they bought or sold with the yield in the actual auction. But the when-issued trading window is short because a Treasury security's main risk metric—its duration—is determined by its fixed interest rate, which is a function of the auction result.

The "risk" in Treasury Risk Forwards means market participants are agreeing to buy or sell a certain amount of duration, not a certain number of bonds. For example, the May 10-year note auction determined that the notes would pay a fixed rate of 3.375% and have a duration of 8.37 years, meaning that a basis-point change in yield on $1,000 of face value would move the price in the opposite direction by 83.7¢. TRFs are agreements to buy the face amount of bonds that supplies $100 per basis point of risk. At a duration of 8.37 years, it would take about 119.5 notes, a face amount of $119,500, to satisfy a single forward contract. At a lower duration, it would take more; at a higher one, fewer.

The risk-certainty afforded by the product's design would allow auctions to begin trading months in advance, Mancuso says, improving their overall efficiency in a way that could lower the US government's borrowing costs. At the same time, Treasury Risk Forwards would predict the yields of the new crop of notes and bonds that the financial world is most interested in.

**The Established Hedge**

Average open interest in all US Treasury futures contracts



*Through May 12

**Source**: CME Group

**THE OTHER PROBLEM** Treasury Risk Forwards could solve is the risk created by the separate clearing systems used by traders involved in both futures and cheapest-to-deliver securities. Daily changes in the value of futures positions are reconciled to margin accounts at CME. The corresponding position in a CTD security is cleared separately—some by a central clearinghouse, more in a hodgepodge of bespoke arrangements.

In volatile markets, that clearing process can lead to a situation in which intraday margin calls on losing futures positions can't be met with profits on a corresponding position in CTD Treasury securities in a way that might stabilize the market. These circumstances deepened losses in the flight to cash that was unleashed by the declaration of a pandemic in March 2020.

A linchpin of Next Level Derivatives' pitch to regulators is that Treasury Risk Forwards could be cleared by the Fixed Income Clearing Corp., which also clears trading in Treasuries. (The FICC is the unit of securities clearing giant Depository Trust & Clearing Corp. that handles government and mortgage-backed debt transactions.) The SEC has made central clearing a centerpiece of its plan to protect the Treasury market against future disruptions. In September it proposed requiring nondealers to participate in central clearing.

Dozens of stakeholders have responded with critical letters.

"A mandate is painful for the Street," Mancuso says. "They're expensive. This product could circumvent a full mandate and provide relief."

Mancuso says he tried to propose his new product to the CME itself, even enlisting the help of a former regulator, but the CME passed. The CME declined to comment on that point. Subsequent licensing agreements with three other exchanges Mancuso won't name eventually lapsed. These obstacles led to the strategic shift to design it as a forward contract, rather than a listed future, that the FICC could centrally clear.

**MANCUSO HAS BEEN** a tireless evangelist since hatching the idea, says Christopher Scaring, 57, who joined Next Level Derivatives as a founding partner in 2016 after a 26-year career trading and selling Treasuries. He says Mancuso has been particularly adept at bringing in new investors and board members. The company's advisers include Brian Quintenz, a member of the Commodity Futures Trading Commission from 2017 to 2021, and Arthur Certosimo, a former head of global markets at Bank of New York Mellon Corp.

Still, this influx may not be enough to overcome CME's massive first-mover advantage. "It's hard to leave a big, liquid market for one which in principle might be better designed but which doesn't have liquidity," says Stanford's Duffie.

Mirza says CME's customers are satisfied with Treasury futures. "Simplicity may sound appealing, but it often doesn't align with market reality," he says. "Our customers are very open with us and would candidly let us know if they wanted alternative designs." ●

---

Stanton is an editor on Bloomberg News' FX/rates team in New York.

# A 32-Year-Old Worth Millions Uses AI to Broker Japan Mergers

By YOOJUNG LEE, MIN JEONG LEE and YASUTAKA TAMURA

**SHUNSAKU SAGAMI SAW** firsthand the growing succession problem among entrepreneurs in Japan, which is grappling with the world's oldest population. That eventually led the 32-year-old to devise a solution: using a proprietary database and artificial intelligence to broker deals for small and midsize companies—largely those founded by clients now on the brink of retirement.

As of May 24, shares of his M&A Research Institute Holdings Inc. had surged almost sevenfold since listing in Tokyo last June, boosting Sagami's fortune to about $900 million, according to the Bloomberg Billionaires Index.

As Sagami tells it, he owes the idea to his grandfather, who dedicated his life to running a small real estate agency in his hometown of Osaka. Unable to find a successor, he had to shut it down when he retired in his 80s.

"In his office there was a license for real estate agents framed up on the wall," Sagami recalls. "Seeing that taken down and thrown away was sad."

M&A Research Institute noted in an April presentation that 620,000 profitable enterprises in Japan could close because of a lack of successors. The government estimates that by 2025 there will be 2.5 million small and midsize businesses with owners older than 70. About half have no succession plan, which could lead to company shutdowns and 6.5 million jobs lost, costing 22 trillion yen ($159 billion) in gross domestic product.

"There are a huge number of small companies with aging founders with no obvious successor that are increasingly open to selling their business," says Tim Morse, director of Asymmetric Advisors, which provides recommendations on Japanese equities. "Traditionally, selling out hasn't been seen as a culturally positive thing, but that's changing."

Since its founding five years ago, M&A Research Institute has grown to more than 160 employees, including some 115 advisers, and has about 500 deals in the works. It closed 62 transactions in the six months through March, up from 26 in the same period in 2022, with sales more than doubling to 3.9 billion yen. In its most recent fiscal year, which ended in September, the company reported 3.9 billion yen in sales, more than 10 times the level two years earlier.

Sagami, who studied biology and agriculture at Kobe University, knew early on that he wanted to build his own business.

Sagami

To hone his skills in different areas, he worked as a designer, software developer and marketing officer. He also tried setting up an e-commerce company and a tutoring firm before his first breakthrough in 2016: a women's fashion and makeup business he called Alpaca, after the furry South American animal known for producing quality wool. He was just 25.

"I always listened to my grandfather tell me stories about how to be successful as an entrepreneur when I was a boy," says Sagami, who owns 72% of M&A Research Institute. "He told me, 'Let's say you have a lottery ticket with a 1% chance of winning. Even if you fail 99 times, you'll win it in your 100th go. Just do it until you nail it.' "

When public-relations agency Vector Inc. bought Alpaca in 2017, Sagami found the process long and inefficient. So he came up with an AI algorithm that would match buyers with sellers and simplify many of the administrative steps and paperwork, taking inspiration from Japan's automation-machinery maker Keyence Corp.

Unlike M&A consultants, who often rely on regional banks for introductions and compete with one another for deals, M&A Research Institute uses the extensive database it built to do the matchmaking, focusing on companies with sales of as much as 500 million yen. Its advisers then do the negotiations, and an agreement can be completed within six months—shorter than the time frame for a typical acquisition, even when there are no regulatory hurdles.

Fees, charged only when a transaction is closed, can reach up to 5% for deals of 500 million yen or less. They averaged 60 million yen per sale in the latest quarter.

While retaining talent is often a challenge in the industry, Asymmetric Advisors' Morse says M&A Research Institute could benefit from a retreat of competitor Nihon M&A Center Holdings Inc., which announced an accounting probe in late 2021. It has since said it will set up a new compliance division, but as of May 24 its shares were still down 72% from a high in 2021.

"I want to aim for higher goals," Sagami says. "I want our company to grow more, complete more and more deals, and if that leads to a greater market cap, then that'd really mean something." ● —*With Pei Yi Mak and Yuko Takeo*

Yoojung Lee reports on Asian wealth from Singapore. In Tokyo, Min Jeong Lee covers technology and Tamura reports on markets.

COURTESY M&A RESEARCH INSTITUTE

# Wall Street Scrutiny Resets $6 Trillion in ESG Debt

By CALEB MUTUA

**A LOT HAS CHANGED** in the five years since Verizon Communications Inc. started selling green bonds. Today investors pore through the fine print, says Scott Krohn, treasurer of the US's largest mobile carrier. Borrowers must establish their credibility if they want to sell bonds that claim to further environmental, social and governance goals.

"That's the best recipe to have a successful program," Krohn says. Transparency can help an issuer "stand out from some of the noise coming from transactions that maybe have lesser quality of reporting."

Broad skepticism about the validity of ESG investments, along with stricter regulation and more challenging credit conditions, has helped to purge dodgy deals from the $6 trillion market for sustainable debt. It's an astounding shift from the early days, when bond sellers were able to market ESG with relatively few questions asked. Now, money managers want to know exactly what they're buying, and they can afford to be picky.

Scrutiny has been intensifying. Borrowers including luxury fashion house Chanel Ltd. and UK grocery chain Tesco Plc have been called out by investors for setting weak ESG goals. Regulators have cracked down on the practice of overstating environmental benefits, know as greenwashing. At the same time, the Federal Reserve and other central banks have been aggressively raising benchmark interest rates to combat inflation.

Investors who once agreed to pay a higher price for green bonds than for traditional debt (a "greenium") started demanding discounts, according to a BloombergNEF analysis in December. Sales of sustainable debt securities by companies and governments worldwide dropped 22% in 2022, the first annual slowdown in 15 years of record-keeping, data compiled by Bloomberg show.

As bond sellers return to the market this year, they're being more careful about what they label ESG. That's especially true in the US, where Republican politicians including Florida Governor Ron DeSantis and former Vice President Mike Pence have led a crusade that seeks to ban "woke" ESG investing, arguing that money managers should focus on maximizing returns for investors instead of pursuing their version of social justice.

"Before, [borrowers] were just looking to try to find an excuse to slap a label on a bond," says Andrew Poreda, a senior research analyst at Sage Advisory Services. These days, ESG bond terms are "feeling a lot more concrete and a lot more authentic," he says.

Challenging credit conditions typically empower investors to ask tougher questions when negotiating deal terms for all kinds of bonds—not only ESG, says Andrew Karp, head of the sustainable banking solutions group at Bank of America Corp. But there's been a clear improvement in the underlying structures of ESG bonds, he says.

Still, the importance of paring back carbon emissions has never been higher—and governments and companies need the cash to help them do it. Global assets in sustainable bond funds have surged 11 times over the past decade, to $516 billion, according to Morningstar Inc. data tallied through the end of 2022.

Greenwashing hasn't disappeared. Even with recent improvements, there's no fully unified regulatory framework to guarantee that a sustainable bond's proceeds are channeled appropriately. Skeptics say that ESG may still prove to be a fad.

Green bonds, which raise money to pay for specific environmental projects, are the largest and most established segment of the ESG debt universe. They're generally considered less susceptible to greenwashing than the more controversial category of sustainability-linked bonds, which tie the borrower's interest costs to meeting preset ESG goals.

More-credible ESG debt stands to offer better returns for investors, too, says Matt Lawton, a money manager for T. Rowe Price Group Inc.'s global impact credit strategy. "Standards have certainly improved," says Lawton, who last year condemned the egregious behavior of banks and companies that exploit ESG investors.

Global ESG bond markets are heating up this year. Sustainable bond sales totaled more than $86 billion in April, the most ever for that month. Issuance of green bonds, the largest category of sustainable debt by amount, surpassed $53 billion, also a record for April.

Verizon's Krohn says he plans to keep tapping the market after raising $1 billion with a green bond in May to help pay for renewable energy plans, its fifth annual ESG sale of that size. Investors placed orders for at least $6 billion in the latest deal, he says.

As of May 22, Verizon's $1 billion in green bonds that mature in September 2030 were offering a 22 basis-point narrower spread to underlying government debt compared with the company's $1.1 billion in traditional bonds that mature a month later.

The greenium is back. ●

---

Mutua is a reporter at Bloomberg News in New York.

Rely on the safe haven.

**KfW is the partner of choice for investors who look for a solid investment.** We issue liquid benchmark bonds, tailored debt securities and commercial papers in all major international markets and currencies. Triple-A-rated and backed by an explicit guarantee from the Federal Republic of Germany, KfW is one of the world's leading providers of safe assets and liquidity in the financial markets. Financing sustainable projects across the globe. The future belongs to those who think ahead. **kfw.de/investor-relations**

75 YEARS
OF SHAPING
THE FUTURE

KFW

# Wall Street's Biggest Banks Face A Reality Check in China

By CATHY CHAN

**MORE THAN THREE YEARS** after China's grand financial opening, Wall Street giants now realize that their dreams of windfall profits from the $60 trillion market are more elusive than ever.

Goldman Sachs Group Inc. and Morgan Stanley are among banks scaling back ambitious expansion plans and profit goals. The reason: A deteriorating geopolitical climate and President Xi Jinping's willingness to sacrifice economic priorities for security concerns are rattling the private sector and throttling dealmaking.

The biggest banks are looking toward more drastic job cuts than those already announced, according to senior executives who asked not to be identified discussing private matters. Goldman Sachs has revised projections in its five-year plan related to China. Morgan Stanley is opting not to build an onshore brokerage for now, making a smaller bet of about $150 million on derivatives and futures businesses. In mid-May the firm was planning another round of job cuts affecting 7% of its Asia-Pacific investment bankers, these executives say. JPMorgan Chase & Co. and rivals reduced China-dedicated head count earlier this year.

The moves mark an about-face for many of the Wall Street giants. As recently as late 2021, they were sticking to plans to take on China's massive banks on their home turf. Back then, they were more concerned about finding enough local talent to drive the expansion amid optimism about the growth of the world's No. 2 economy. Now, the executives say, the best opportunities for making outsize profits in the country are over.

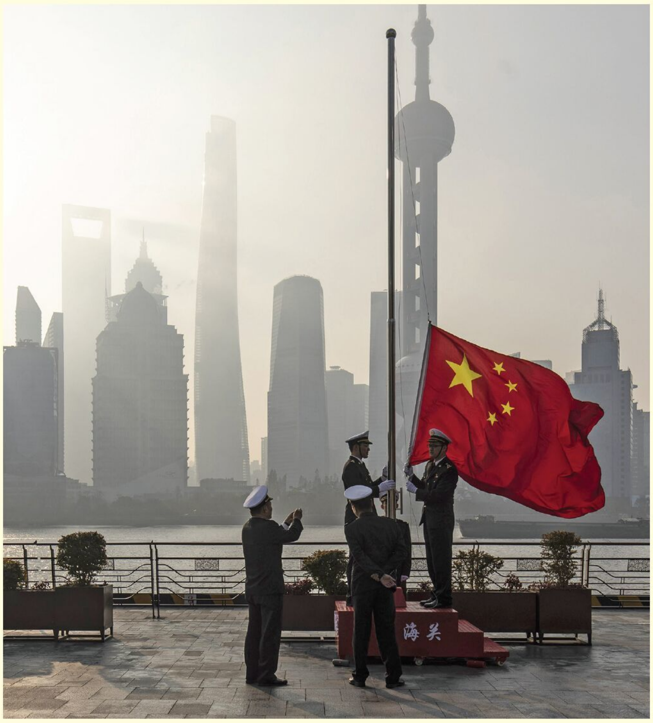
"This changing calculus makes the cost of doing business in China higher and the rewards much lower," says Mark Williams, a Boston University finance professor. "These global banks are vulnerable to political actions that could inflict material financial harm to their franchises and to shareholders."

While many banks are eliminating jobs globally, the cuts in China are the biggest in years and, in many cases, deeper relative to the rest of the world, a senior Wall Street executive says. China's economy is struggling to get back on its feet after years of Covid-19 restrictions and crackdowns on industries such as financial technology, private education and real estate. Goldman alone let go of more than 10% of its workforce on the mainland after doubling head count to more than 600 to build up its business, the executives say. Representatives at Goldman Sachs, JPMorgan and Morgan Stanley declined to comment.

China has enacted the most sweeping changes in decades for its financial services. It has allowed foreign firms full ownership of insurers, banks, brokers and asset managers as Xi seeks to cushion the economy from the steepest slowdown since the early 1990s amid a trade dispute with the US. Previously, foreign companies needed to have a joint venture with a Chinese partner.

As a result, China's state-owned players are well-entrenched in these industries after learning from their joint-venture partners for years, making it hard for global firms to compete. "The Chinese banks totally dominate the market," says Dick Bove, a longtime

The Lujiazui Financial District in Shanghai



QILAI SHEN/BLOOMBERG

bank analyst and chief financial strategist at Odeon Capital Group in New York. Domestic firms have "little need for American expertise," he says.

International banks have long viewed China as the final frontier for big fees on everything from mergers to stock sales and trading. Bank of America, Citigroup, JPMorgan and Morgan Stanley had combined China exposure of $48 billion in 2022, though that was down 16% from the previous year. Several banks have spent more than $4 billion in recent years upping or acquiring controlling stakes in their securities and asset management joint ventures, in a bet on future growth, according to Bloomberg calculations.

The Wall Street firms face challenges on several fronts. The biggest revenue driver in past decades—taking Chinese firms public in New York—has all but dried up. Xi has tightened listing rules to keep companies at home while the US has cracked down on Chinese firms over accounting. That's put initial public offerings on hold and prompted some bellwether companies such as PetroChina Co. and the two largest airlines to seek delisting of their stocks in New York.

Wall Street companies still have to strike a delicate balance. Publicly, everyone's saying the same thing: China is a massive opportunity, and they have no plans to pull out, especially since so much money has already been spent. Privately, executives say it's difficult to maintain good standing with both the US and China as tensions repeatedly flare. That could get tougher as the US election cycle approaches. China policy is poised to be a major topic on both sides of the political aisle, all but guaranteeing more drama.

"Wall Street banks should have factored in geopolitical risks a long time ago," says Chen Zhiwu, a professor of finance at the University of Hong Kong Business School. "Over the next five years, the best-case scenario for them is that China reverses direction and goes back to real open-door-policy and market reforms, revitalizing the business environment. This is an extremely unlikely scenario, but not impossible." ●

---

Chan reports on Greater China finance for Bloomberg News from London.

# Bankers' Pay Is Booming In Saudi Arabia

By NICOLAS PARASIE and MATTHEW MARTIN

**EVEN AS THE GLOBAL** financial community contends with layoffs and lower bonuses, banking jobs remain plentiful and salaries are surging in one unexpected corner of the world: Saudi Arabia.

The pay boom is being driven by the expansionist zeal of Crown Prince Mohammed bin Salman, who's flush with cash from oil sales and determined to make the kingdom's economy a financial powerhouse. State entities, such as his Public Investment Fund (PIF), with more than $600 billion in assets, are hiring at breakneck speed, often recruiting staff from the local offices of foreign companies. Wall Street banks are also desperate to expand, drawn by the promise of deals linked to an outsize attempt at economic reform.

But on the ground, hiring is proving to be a challenge. While MBS, as the de facto ruler is known, has eased many social regulations, alcohol is still banned, and extramarital relations and homosexuality remain punishable as "moral crimes." The severe rules and the prospect of a monotonous lifestyle in Riyadh often repel expats. Meanwhile, experienced local employees are in short supply. That's fueling a fight for talent and boosting salaries, bankers and headhunters say.

Recruiter Hays Plc estimates that most banking professionals in Saudi Arabia can earn roughly 20% more than their counterparts in Western financial centers. Expat executives willing to relocate to the kingdom from neighboring Dubai can ask for 20% to 35% extra, according to headhunting firm Mark Williams. Senior hires are able to command even higher amounts.

Saudi Arabia "is like China two decades ago," says Carmen Haddad, Citigroup Inc.'s vice chairperson for the Middle East and country officer in the kingdom. At the same time, the fast-paced economic reforms also bring "fresh challenges, such as an ongoing battle for talent in the financial sector," says Haddad, who helped rebuild the bank's presence after a 13-year absence.

The Saudi boost comes in a few ways. Vice president roles, typically a midlevel title for bankers in their 30s, carry an annual salary of $225,000 to $255,000 in the kingdom, according to a Hays survey. That's about 10% to 20% higher than a comparable London salary at a top bank, according to a 2022 Dartmouth Partners report. And that's before bonuses, which can be more than 100% of a banker's salary in a good year.

In addition, recruiters say that people with fewer years of experience can nab a higher title—and thus a higher salary—than they would in a bigger financial center. Employees in Saudi Arabia

JEREMY SUYKER/BLOOMBERG

The King Abdullah Financial District in Riyadh

also take home more through various perks—and pay no income taxes.

MBS has emphasized that international companies that want to do business in the kingdom must have an on-the-ground presence. A recent rule also requires firms to recruit a certain proportion of Saudis. With many expats reluctant to make Saudi Arabia their home, locals believe they have particularly strong negotiating power. Senior executives at two international investment banks said they recently rejected Saudi candidates who'd asked for salaries that would have made them some of the highest-paid employees at those firms globally.

Meanwhile, the PIF has been hiring and expanding rapidly as it invests to wean the country off its reliance on crude. It now employs about 2,000 people, up from just 40 about a decade ago. The sovereign fund has been tempting potential employees by offering a 30% hike over existing salaries, according to people with knowledge of the matter. Increases were previously sometimes even higher, but the fund has in recent instances used 30% as an informal cap to stop pay packages from getting out of hand, according to the people, who asked not to be named discussing information that isn't public.

Most packages also include perks such as housing, school fees and flights home, as well as the tax-free salary, providing a huge boost to expats moving to Saudi Arabia from countries such as the UK. To retain employees, foreign companies must try to match those packages or else hire less-experienced local staff, people within the financial industry say.

To stay ahead, the PIF has been hiring employees from banks such as Goldman Sachs Group Inc. and the UK's HSBC Holdings Plc. Within Riyadh's financial community, HSBC—which employs about 200 investment bankers in the kingdom—has become known as a "training center" for local bankers and officials, according to one senior executive who asked not to be identified. The British lender holds an annual alumni event in the city, which has swelled as a rising number of local employees leave for top government jobs or more senior roles at rivals.

Among the Saudi nationals who've made big moves are Abdullah Shaker and Fahad Al Saif, who joined the PIF in senior positions after previous stints at HSBC. PIF Governor Yasir Al-Rumayyan himself joined the fund from the investment banking unit of Banque Saudi Fransi, which until recently was backed by Credit Agricole SA.

The churn of staff can give banks a network within their biggest clients, but it highlights some of the growing pains Saudi Arabia faces as it intensifies efforts to diversify its economy. Global banks confront a particular challenge when expanding in the kingdom: While they rely on deals from entities such as the PIF, those same state entities are complicating those growth plans. Representatives for the PIF and HSBC declined to comment.

Goldman Sachs has been boosting its head count in the kingdom and plans to move into bigger offices this year to expand further. Says Zaid Khaldi, the company's regional co-chief executive officer: "Saudi bankers are in high demand, and so talent is scarce." ● —*With Fahad Abuljadayel*

---

Parasie writes about Middle East finance for Bloomberg News in Dubai. Martin is Riyadh bureau chief.

# BlackRock's Wei Li Says Global Markets' 'Goldilocks' Period Is Over

By KSENIA GALOUCHKO

PHOTOGRAPHS BY JILLIAN EDELSTEIN

**AS THE GLOBAL** chief investment strategist for the BlackRock Investment Institute, Wei Li leads a proprietary research team that provides the world's largest asset manager with insights on markets, economics, geopolitics and long-term asset allocation. She attributes her rapid career trajectory—she's just 38—to her international upbringing, competitive spirit, strong math background (she's a two-time gold medalist in the Mathematical Olympiad from China) and ability to figure out how to play to her strengths as an introvert. Li spoke with *Bloomberg Markets* on April 20 in London about the recent banking turmoil and the unusual challenge ahead for central banks. She also offered insights into how her team is thinking about asset allocation and described her love-hate relationship with golf. The conversation has been edited for length and clarity.

**KSENIA GALOUCHKO:** How would you describe your upbringing, and what were your passions? How did you get to Cambridge?

**WEI LI:** I think I'm a citizen of the world. I was born in Chongqing, this very small city of 36 million people [laughs] in the center of China. When the coastal south opened up, my parents went there in the first wave, and they took me with them. I was lucky enough to have the opportunity to study in Singapore on a scholarship. And from there, I was able to apply to universities all across the world. I came to the UK [and received a master's degree in mathematics, with honors, from the University of Cambridge], and the rest is history.

**KG:** You started in finance out of university—was it a calling, or did you stumble into it?

**WL:** Oh, I stumbled into finance. I think I'm quite a competitive person, so when my peers in school were saying, "We're going to get an internship in Canary Wharf or on Wall Street," I was like, "Let's see what the fuss is about." I was able to get internships in various places, and I ended up in Lehman Brothers. I really liked the fast pace of markets but also how an individual can soak all of that in and respond. The fast pace and the buzz are energizing. Having a math background helps a lot in terms of understanding, digesting, processing new information and reacting quickly.

**KG:** Finance is very competitive. How did you rise so fast?

**WL:** It's important to find a way to navigate your career that is authentic to yourself. I'm a very introverted person, actually very quiet in terms of how I process things. Instead of talking out loud, I am more of a processing-in-my-head kind of person. When I was on the trading floor amid the very assertive—and potentially even a bit aggressive way of interacting—I found that overwhelming to some extent.

Understanding what works for me and how I can make the most of it is important in staying true to myself, but also because a career is a marathon, not a sprint. At BlackRock, I did this grassroots initiative a little while ago called Quiet Riot. People like me, a bit introverted and quiet, come together to compare notes and share tips in terms of how to navigate what is ultimately a loud organization. In an outspoken organization, how do you advocate for yourself?

When I first started in the investment strategy role—my then-boss is now the boss of BlackRock in EMEA—Steve Cohen was leading investment strategy in the ETF business. He is a middle-aged White man. I was trying to learn from him in a very precise way. I was like, "I see him opening up a presentation by making a joke, I'm going to do exactly that." But it didn't quite work. So he gave me advice: "You have this very unique dimension. Embrace that rather than trying to erase it and be like me, because you can be a better version of yourself, but you cannot be a better version of Steve Cohen than Steve Cohen."

**KG:** Who are your role models and why?

**WL:** There is this app called Rungway that allows career advice exchange either publicly, using your name, or anonymously. I met Julie Chakraverty, the CEO of Rungway, and I see a bit of myself in her. She was wildly successful in the City back in the day, and then she left to go into a startup. She's an Indian woman. She may not be very loud, but she has such a wonderful way of making her presence seen and heard.

She has been giving me tips and guidance in terms of how to carry myself in, for example, a big boardroom setting, how to give out an air of authority. When I'm thinking, "How do I do this?" I think, "OK, how would Julie do this?" And it helps. The power of representation. And I hope that I can be that representation for someone that may see a bit of herself in me.

**KG:** Where do you see yourself in 10 years?

**WL:** In the past, when I planned way ahead of time, things didn't always happen in that direction.

I've changed my role a couple of times. When I was starting out, my boss at Lehman Brothers, way back, told me, "Be replaceable. If you're not replaceable, you are always stuck in that seat. And you will not be given opportunities to grow." So from the very beginning ►

of my career, I always made an effort to be very replaceable. I'm perhaps the most replaceable person right now on my team, always handing over everything that I have been building. When I go on holiday, nothing gets dropped because people know exactly what I do. So in a growth business area, if you're good and you are replaceable, then when opportunities come up, people think of you. People don't think of someone who is good and irreplaceable, because then something is going to break. Nothing ever breaks when I'm not there.

**KG:** And you are then not pigeonholed into one role only, right?

**WL:** I think so. And in the context of building depth and expertise, I don't mind being pigeonholed. I think the reason that I was given this opportunity to be the global chief investment strategist for BlackRock at the time when the role came up—Mike Pyle went to the Biden administration—the seat vacated very, very quickly. They looked around the firm. Who are the people that can do it, and then who are the people that we can move?

**KG:** You've had trading experience, ETF experience. You now have the strategy experience. Are you ready for new challenges?

**WL:** Not right now. I've been in this seat for more than two years, right? There is so much more that we can build out in this seat.

Putting in place a very rigorous process for generating views in a whole portfolio context, I think that's important. We are on the path to get to where we want to be, but more needs to be done. And the changing world—the macro environment, the net-zero transition, structural forces like aging demographics, geopolitical fragmentation—all of those themes: How does that precisely translate into building new portfolios that work for the cyclical context but are also well-positioned for the longer-term trends? I'm still learning, and for as long as I am still learning, I'm very happy.

**KG:** Do you see any more trouble brewing in the financial sector?

**WL:** The banking turmoil we saw in March was not a banking crisis. It was more of an expression of financial cracks appearing in markets in response to the rate-hike cycle. Central banks, during the Great Moderation from the mid-'80s to before the pandemic, were able to mitigate economic cycles because their tools were very effective in addressing the demand side of the equation. But now that their tools need to address the supply side, they're less effective, and the cost is higher. We are bound to see growth slow down, the labor market becoming weaker and financial cracks appearing in the system. The gilt yield spike last September [when UK gilts and the pound fell sharply in response to then-Prime Minister Liz Truss's proposed unfunded tax cuts] was more evidence of financial cracks appearing.

It's impossible to predict where the next crack will appear, but paying attention to where there is an asset-liability mismatch, where there is funding stress, where there is excessive leverage, could give you a clue. The area of commercial real estate comes up a lot, because the funding costs have risen, and they are very closely associated with the regional banks for funding, and the regional banks in the US are now facing higher funding cost. The overall credit environment has become a bit tighter.

The banking turmoil's first leg down has stabilized. The credit tightening, potential credit crunch, is still playing out. That can further weigh on growth and reinforces our view that a recession is coming. Maybe the central banks don't need to do as much to destroy demand to fight inflation because some of that is being done by credit tightening.

**KG:** After the financial crisis, we had more than a decade-long bull market in equities with very strong returns. What is this next phase in the equity market?

**WL:** The framing of "When are we going to enter the next decade-long bull market?" needs to be challenged. In an environment where liquidity was ample and central banks were able to effectively mitigate economic cycles by hiking or cutting rates to address demand, we were able to enjoy a decade-long equity bull market and bond bull market. But in the current environment, the choices facing central banks are really, really tough. They can fight inflation at all costs, but then they hurt growth, they hurt equities. Or they say this environment is shaped by supply—coming from the labor force, net-zero transition, geopolitical fragmentation—and we have to live with higher inflation or implicitly higher inflation.

But when that happens, an inflation premium comes back, a term premium comes back, and bonds suffer. So, the "Goldilocks" outcome where equities go up over a sustained period of time alongside bonds—I think that period is over. I think being very dynamic and tactical, even in your strategic asset allocation, is important. Our research shows that to be spot-on with your equity-bond mix is three times as important versus during the Great Moderation. When everything was going up, it didn't really matter if you were 60/40 or 40/60 or 20/80 or 80/20. As long as you were invested, you were able to benefit from that rising tide lifting all boats. Now you've got to be really selective in getting your equity-bond mix right.

**KG:** There's still a huge difference where you take a 10-year return versus if you look on a quarterly and monthly basis. Do you think it's better to think longer term?

**WL:** If you have the luxury of a longer-term horizon, there are opportunities you should be aggressively taking advantage of. The investment environment has looked meaningfully better, has improved a lot versus three years ago. If you're able to look through the upcoming recession that we expect later this year, you can start building equity

**"It's impossible to predict where the next crack will appear, but paying attention to where there is an asset-liability mismatch, where there is funding stress, where there is excessive leverage, could give you a clue"**

portfolios, the risky part of your portfolios, already. Currently, we prefer emerging markets over developed markets over the tactical horizon, but over the longer term, we prefer developed-market equities. We're already overweight developed-market equities. The TAA [tactical asset allocation] is 6 to 12 months. The SAA [strategic asset allocation] officially is 5 to 10 years. That's the definition as we think about constructing portfolios.

Even if you have a horizon of just two years, in two years' time, I can say with a huge amount of confidence that we will have already put this "Are we going to have a recession or not?" debate behind us. Already a case can be made to be more positive than we currently are. You know, if there's one silver lining coming out of the very difficult market that was 2022, it's that income is finally back in fixed income. I think that's great. It may not be the most exciting thing to say that you are embracing this, but why not? I want reliable, boring strategies.

**KG:** What is the most popular question your clients are asking right now?

**WL:** Understanding the persistent drivers within the different components of inflation, and understanding where inflation will settle, is a super-topical question. We have been of the view that, in the US context, 3% is the new 2%. And then the natural follow-up is how do you inflation-protect your portfolio? Inflation-linked bonds—and then this in part is also why strategically we are overweight developed-market equities, because there is that inflation angle but then also private markets, real assets.

Then in the context of emerging markets, China is restarting this year. For 2023, we think China will grow [6% or more]. More broadly, emerging-market central banks hiked rates early coming out of the pandemic, so they now can cut rates. We have the overweight in emerging-market equities and in local-currency emerging-market debt. We're not calling for emerging markets to reverse the decades-long underperformance versus developed markets. We're saying that right now there is a momentum going on, and we want to lean into that, but strategically, we actually have a preference for developed markets over emerging markets.

And the last thing I would say is the impact of artificial intelligence. I'm still trying to figure out what that will mean. The speed at which people are switching to these artificial-intelligence-enhanced kind of tools has been incredible. What that means for productivity gains is a wild factor that we've got to think about. We talk about the labor shortage, but in the context of AI, how do we think about that?

I'm an optimist, though. Yes, technology will replace some jobs and destroy some jobs, but it also will create new jobs. Asking if ChatGPT or an AI persona is doing a better investment strategy update than Wei Li, then what is Wei Li going to do?—I think that's the pessimistic take on things. I think Wei Li can do something else to make that thing even better.

**KG:** What other big trends do you see that will change the world of finance?

**WL:** Change the world of finance? Net-zero transition, the US Inflation Reduction Act and the European Green Deal industrial plan. The IRA has a domestic production focus, right? I think that geopolitical angle, that competitive angle and potentially protectionist angle, is going to have really interesting ramifications, both in the geopolitical context but also in the net-zero transition context. It's a global race. China is in it. Canada, everybody is.

We don't know who is going to win, or maybe we are not going to have one single winner. Diversifying your baskets to really take advantage of this global race, as we think about positioning portfolios for the long term, that's important.

I have read this article that referenced the term "transactional-25." These are the countries that they call nonaligned, but actually I think they are multialigned. These are the countries that try to strike the balance between the Sino-US decoupling and confrontation. Some are big, some are small, they're very different in wealth, very different in political system, but they make up like 40% of the global population. China and the US are wanting to win them over, and in so doing, the opportunities that can be created evolve very, very quickly. And then AI: The Investment Institute is looking into the different dimensions that are going to benefit from a macro perspective.

**KG:** So what do you do in your free time?

**WL:** I like to play golf, and I'm a terrible golfer. It's really fun when it goes well, but then it's endlessly frustrating. My husband plays a lot of golf, and I realized that if I don't play golf, I lose my husband over the weekend. During the week, we're busy, and I don't see him. We're members of Dulwich & Sydenham Hill Golf Club, and then we play everywhere.

I also like cooking a lot. I like hosting. I'm Chinese, my husband is Italian, so we play with fusion, and these are two big food cultures, right? When you have all those crazy ingredients, it's fun. I like that. I find it relaxing. ●

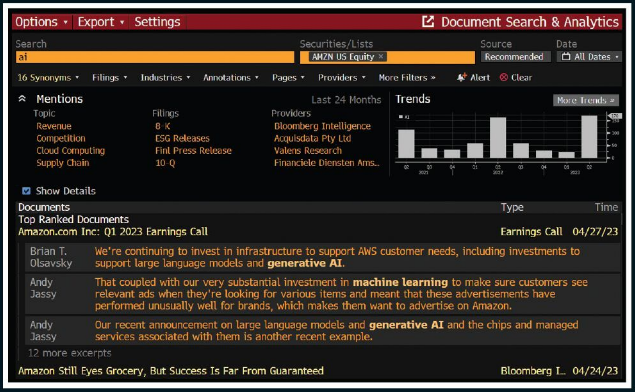
---

Galouchko is a reporter for Bloomberg News covering stocks and investment strategies. She's based in London.

# Functions for the Market
# The Future of Finance ➔

## DS <GO>

p36


Options ▾
Export ▾
Settings
Document Search & Analytics
Search
Securities/Lists
Source
Date
16 Synonyms ▾
Filings ▾
Industries ▾
Annotations ▾
Pages ▾
Providers ▾
More Filters »
Alert
Clear
Trends
More Trends »
AI
170
150
100
50
0
Q2
Q3
2021
Q4
Q1
Q2
2022
Q3
Q4
Q1
2023
Q2

Search: ai

Securities/Lists: AMZN US Equity ×

Source: Recommended

Date: All Dates

**Mentions** Last 24 Months

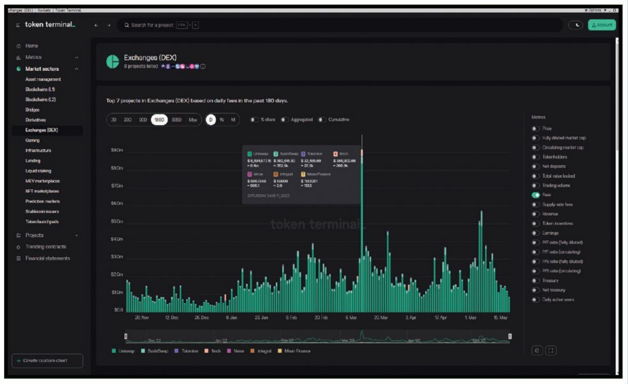
| Topic | Filings | Providers |
|---|---|---|
| Revenue | 8-K | Bloomberg Intelligence |
| Competition | ESG Releases | Acquisdata Pty Ltd |
| Cloud Computing | Finl Press Release | Valens Research |
| Supply Chain | 10-Q | Financiele Diensten Ams... |

☑ Show Details

| Documents | Type | Time |
|---|---|---|
| Top Ranked Documents | | |
| Amazon.com Inc: Q1 2023 Earnings Call | Earnings Call | 04/27/23 |
| Brian T. Olsavsky: We're continuing to invest in infrastructure to support AWS customer needs, including investments to support large language models and **generative AI**. | | |
| Andy Jassy: That coupled with our very substantial investment in **machine learning** to make sure customers see relevant ads when they're looking for various items and meant that these advertisements have performed unusually well for brands, which makes them want to advertise on Amazon. | | |
| Andy Jassy: Our recent announcement on large language models and **generative AI** and the chips and managed services associated with them is another recent example. | | |
| 12 more excerpts | | |
| Amazon Still Eyes Grocery, But Success Is Far From Guaranteed | Bloomberg I... | 04/24/23 |

## APPS TOKEN <GO>

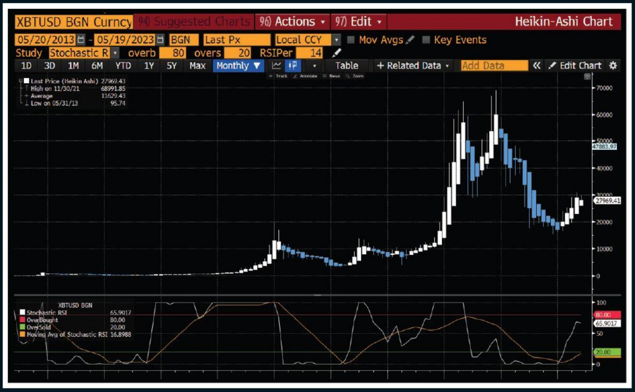
p40


token terminal_
Search for a project
Account
Home
Metrics
Market sectors
Asset management
Blockchains (L1)
Blockchains (L2)
Bridges
Derivatives
Exchanges (DEX)
Gaming
Infrastructure
Lending
Liquid staking
MEV marketplaces
NFT marketplaces
Prediction markets
Stablecoin issuers
Token launchpads
Projects
Trending contracts
Financial statements
Create custom chart
Exchanges (DEX)
8 projects listed
7D
30D
90D
180D
365D
Max
D
W
M
% share
Aggregated
Cumulative
$90m
$80m
$70m
$60m
$50m
$40m
$30m
$20m
$10m
$0.0
28 Nov
12 Dec
26 Dec
9 Jan
23 Jan
6 Feb
20 Feb
6 Mar
20 Mar
3 Apr
17 Apr
1 May
15 May
token terminal_
Metrics
Price
Fully diluted market cap
Circulating market cap
Tokenholders
Net deposits
Total value locked
Trading volume
Fees
Supply-side fees
Revenue
Token incentives
Earnings
P/F ratio (fully diluted)
P/F ratio (circulating)
P/S ratio (fully diluted)
P/S ratio (circulating)
Treasury
Net treasury
Daily active users
Uniswap
SushiSwap
Tokenlon
1inch
Verse
Integral
Mean Finance

Top 7 projects in Exchanges (DEX) based on daily fees in the past 180 days.

## GPHA <GO>

p46


XBTUSD BGN Curncy
94) Suggested Charts
96) Actions ▾
97) Edit ▾
Heikin-Ashi Chart
Mov Avgs
Key Events
1D
3D
1M
6M
YTD
1Y
5Y
Max
Monthly ▼
Table
+ Related Data ▾
Add Data
Edit Chart
Track
Annotate
News
Zoom
70000
60000
50000
47883.97
40000
30000
27969.41
20000
10000
0
XBTUSD BGN
100
80.00
65.9017
50
20.00
0

05/20/2013 - 05/19/2023 BGN Last Px Local CCY

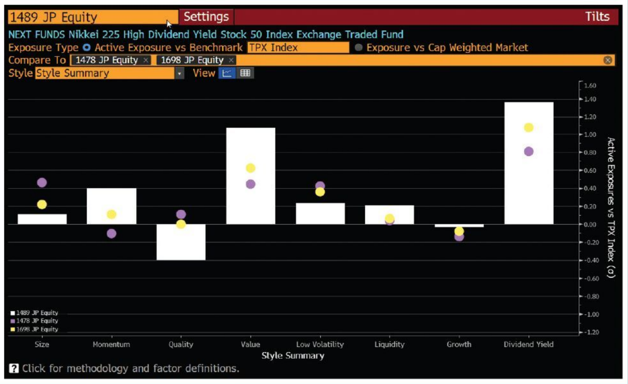
Study Stochastic R overb 80 overs 20 RSIPer 14

| | |
|---|---|
| Last Price (Heikin Ashi) | 27969.43 |
| High on 11/30/21 | 68991.85 |
| Average | 11629.43 |
| Low on 05/31/13 | 95.74 |

| | |
|---|---|
| Stochastic RSI | 65.9017 |
| OverBought | 80.00 |
| OverSold | 20.00 |
| Moving Avg of Stochastic RSI | 16.8988 |

## TLTS <GO>

p49


Settings
Tilts
View
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
Active Exposures vs TPX Index (σ)
■ 1489 JP Equity
■ 1478 JP Equity
■ 1698 JP Equity
Size
Momentum
Quality
Value
Low Volatility
Liquidity
Growth
Dividend Yield
Style Summary

1489 JP Equity

NEXT FUNDS Nikkei 225 High Dividend Yield Stock 50 Index Exchange Traded Fund

Exposure Type ● Active Exposure vs Benchmark TPX Index ● Exposure vs Cap Weighted Market

Compare To 1478 JP Equity × 1698 JP Equity ×

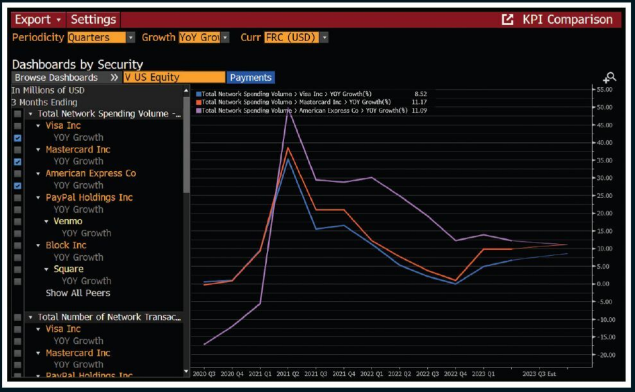
Style Style Summary

? Click for methodology and factor definitions.

**TO HELP YOU STAY AHEAD** of fast-changing markets, we've compiled some tips on hot subjects including AI and crypto. Read why hedge fund manager Deepak Narula thinks agency mortgage-backed securities are offering unusual value, then learn about how to analyze prospects for consumer discretionary companies. Find out how the clean energy transition is affecting power companies. Compare a fund's factor tilts against peers. Simplify your workflow by automating the rebalancing process for a factor-based strategy. For more FFM stories, go to **{FFM <GO>}**.

## KPIC <GO>

p42


Export
Settings
KPI Comparison
Browse Dashboards
Payments
55.00
50.00
45.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
2020 Q3
2020 Q4
2021 Q1
2021 Q2
2021 Q3
2021 Q4
2022 Q1
2022 Q2
2022 Q3
2022 Q4
2023 Q1
2023 Q3 Est

Periodicity Quarters  Growth YoY Grow  Curr FRC (USD)

Dashboards by Security

V US Equity

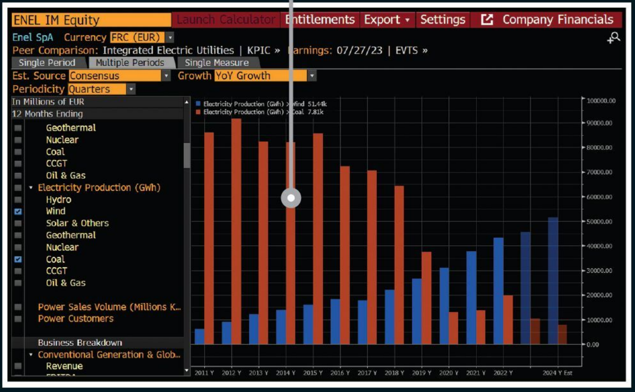
In Millions of USD
3 Months Ending
☐ Total Network Spending Volume -...
☐ Visa Inc
☑ YOY Growth
☐ Mastercard Inc
☑ YOY Growth
☐ American Express Co
☑ YOY Growth
☐ PayPal Holdings Inc
☐ YOY Growth
☐ Venmo
☐ YOY Growth
☐ Block Inc
☐ YOY Growth
☐ Square
☐ YOY Growth
Show All Peers
☐ Total Number of Network Transac...
☐ Visa Inc
☐ YOY Growth
☐ Mastercard Inc
☐ YOY Growth

| | |
|---|---|
| Total Network Spending Volume > Visa Inc > YOY Growth(%) | 8.52 |
| Total Network Spending Volume > Mastercard Inc > YOY Growth(%) | 11.17 |
| Total Network Spending Volume > American Express Co > YOY Growth(%) | 11.09 |

Use **{MODL}** to track how power generation from wind and other renewables overtook coal at Enel.

## MODL <GO>

p44


Launch Calculator
Entitlements
Export
Settings
Company Financials
Single Period
Multiple Periods
Single Measure
100000.00
90000.00
80000.00
70000.00
60000.00
50000.00
40000.00
30000.00
20000.00
10000.00
0.00
2011 Y
2012 Y
2013 Y
2014 Y
2015 Y
2016 Y
2017 Y
2018 Y
2019 Y
2020 Y
2021 Y
2022 Y
2024 Y Est

ENEL IM Equity

Enel SpA  Currency FRC (EUR)

Peer Comparison: Integrated Electric Utilities | KPIC » Earnings: 07/27/23 | EVTS »

Est. Source Consensus  Growth YoY Growth

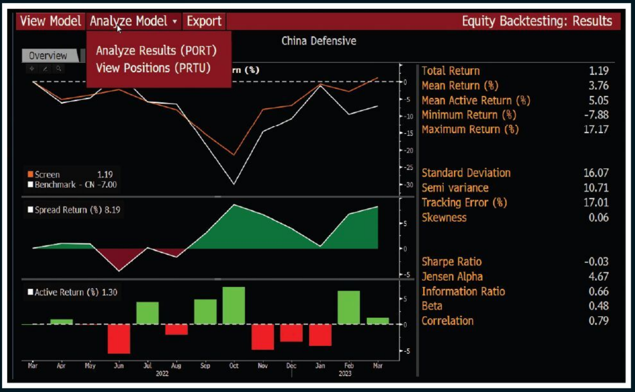
Periodicity Quarters

In Millions of EUR
12 Months Ending
☐ Geothermal
☐ Nuclear
☐ Coal
☐ CCGT
☐ Oil & Gas
☐ Electricity Production (GWh)
☐ Hydro
☑ Wind
☐ Solar & Others
☐ Geothermal
☐ Nuclear
☑ Coal
☐ CCGT
☐ Oil & Gas
☐ Power Sales Volume (Millions K...
☐ Power Customers
Business Breakdown
Conventional Generation & Glob...
☐ Revenue

Electricity Production (GWh) > Wind 51.44k
Electricity Production (GWh) > Coal 7.81k

## EQBT <GO>

p52


View Model
Analyze Model
Export
Equity Backtesting: Results
Analyze Results (PORT)
View Positions (PRTU)
Overview
rn (%)
0
-5
-10
-15
-20
-25
-30
5
0
-5
5
0
-5
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
2022
2023

China Defensive

Screen 1.19
Benchmark - CN -7.00

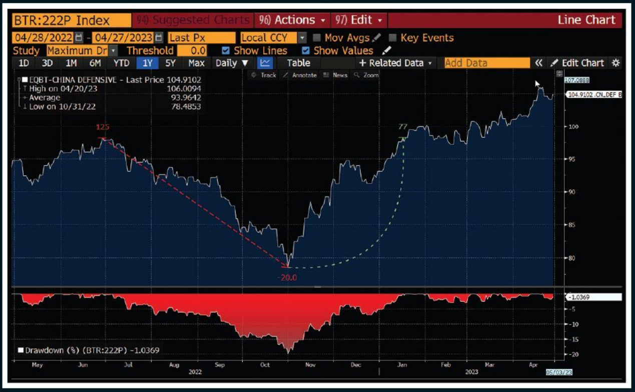
Spread Return (%) 8.19

Active Return (%) 1.30

| | |
|---|---|
| Total Return | 1.19 |
| Mean Return (%) | 3.76 |
| Mean Active Return (%) | 5.05 |
| Minimum Return (%) | -7.88 |
| Maximum Return (%) | 17.17 |
| Standard Deviation | 16.07 |
| Semi variance | 10.71 |
| Tracking Error (%) | 17.01 |
| Skewness | 0.06 |
| Sharpe Ratio | -0.03 |
| Jensen Alpha | 4.67 |
| Information Ratio | 0.66 |
| Beta | 0.48 |
| Correlation | 0.79 |

## GP MAXDD <GO>

p52


94) Suggested Charts
96) Actions
97) Edit
Line Chart
1D
3D
1M
6M
YTD
1Y
5Y
Max
Daily
Table
+ Related Data
Add Data
Edit Chart
Track
Annotate
News
Zoom
107.0888
104.9102 .CN_DEF B
125
77
-20.0
100
95
90
85
80
-1.0369
-5
-10
-15
-20
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
Apr
2022
2023
05/03/23

BTR:222P Index

04/28/2022 - 04/27/2023  Last Px  Local CCY  ☐ Mov Avgs  ☐ Key Events

Study Maximum Dr  Threshold 0.0  ☑ Show Lines  ☑ Show Values

| | |
|---|---|
| EQBT-CHINA DEFENSIVE - Last Price | 104.9102 |
| High on 04/20/23 | 106.0094 |
| Average | 93.9642 |
| Low on 10/31/22 | 78.4853 |

Drawdown (%) (BTR:222P) -1.0369

# Hedge Fund Veteran Deepak Narula Says Agency MBS Offer Unusual Opportunities Now

By JON ASMUNDSSON

PHOTOGRAPH BY AXEL DUPEUX

**DEEPAK NARULA SAYS** wide spreads in the agency mortgage-backed security market offer opportunities approaching those that surfaced in the wake of the global financial crisis.

The founder and chief investment officer of Metacapital Management LP should know. Born in New Delhi, Narula earned a Ph.D. in management science at Columbia Business School before joining Lehman Brothers Holdings Inc. as a research analyst in 1989. There, he rose to become head of mortgage strategy, then to lead Lehman's agency MBS and derivatives trading desks.

Narula founded Metacapital in 2001 and started its first fund the following year. In 2007, amid the subprime bubble, risks looked so lopsided, he says, that the firm liquidated the fund and returned capital to investors. "The amount of froth in the system was incredible," Narula says.

Metacapital started a new vehicle in 2008 that went on a tear in the wake of the financial crisis. It was the best-performing large hedge fund in *Bloomberg Markets*' 2012 ranking, with a 41% return for the year. After that, with the Federal Reserve holding rates low, the fund had some tough years, Narula says. He was optimistic going into 2020. Then Covid-19 hit. "There was a week in 2020 that was a brutal week for us," he says. The firm's assets under management are now about $125 million.

With the Fed hiking to more than 5% from almost zero in March 2022, rising rates have buffeted US housing. Mortgage applications are running at a lower level this year than they have in any of the past 20 years, says Erica Adelberg, Bloomberg Intelligence's chief MBS strategist. (Go to **{BI MORT <GO>}** for BI's mortgage dashboard.)

That lower supply and other factors are now creating interesting opportunities in the market, Narula says. On a sunny Wednesday in May, he spoke with *Bloomberg Markets* at Metacapital's offices, next to New York's Carnegie Hall. BI's Adelberg joined the conversation, which has been edited for length and clarity.

**JON ASMUNDSSON:** Could you tell us about where you see the opportunities now?

**DEEPAK NARULA:** Absolutely. What makes agency mortgages interesting is that you're never worried about getting your money back. As long as the US agencies [Fannie Mae, Freddie Mac, Ginnie Mae] that have the backing of the US government are there to provide the guarantee on the principal and interest payments, that's never a concern. Yet you will find that these government-guaranteed Ginnie Maes and quasi-government-guaranteed Fannie and Freddie securities will trade at significant spreads to Treasuries—even net of what is the embedded option in these, which is the prepayment option. That is really what differentiates these securities from a lot of other government debt and also a lot of corporate securities.

The interesting thing about agency MBS is not that you're worried about getting your money back, you just don't know *when* you'll get it back. It's the uncertainty of the timing of cash flows that makes it particularly interesting. And the reason for that is homeowners in the US—very unique mortgage market—can take out a 30-year loan and, without penalty, pay that loan anytime. That prepayment is what makes the timing of cash flow uncertain, which produces basically a risk premium that is embedded in these securities. One is explicit in the form of the fact that when rates go down, homeowners refinance.

We've lived through a big refinancing boom post-Covid. ►

Narula

You had basically 2.5% mortgage rates available to the vast majority of the population. That's just very compelling. As rates go down, borrowers refinance their debt. That makes a lot of sense, you can save a lot of money. But that makes these bonds callable. So it's a government-guaranteed security that has embedded in it a call option that is linked to rates. But it's not linked only to rates. It's also linked to the state of the housing markets, which are evolving and uncertain and hard to predict. Trying to forecast housing over any long period of time is like trying to forecast GDP. It's generally a fool's game. What you find is there's a risk premium embedded in these securities in the spread that they offer over Treasuries.

In our world, we basically call it the option-adjusted spread—adjusted for the prepayment option to basically come up with what is the net spread that you're getting over Treasuries. And so—long answer to your question—what makes the sector interesting is when these OASs are really wide (**FIG. 1**). Fundamentally, when you're talking Ginnie Mae, you're talking US Treasury credit, and so for it to trade for significant periods of time at wide spreads to Treasuries is unusual. It's very unusual. Currently spreads look extremely wide, and there's a confluence of factors that's made it happen.

One of the bigger contributors is the Fed's QT [quantitative tightening] program and the distress that we've had with small and midsize banks recently. That is something we think makes for a very compelling investment.

**JA:** Can you talk a little bit about the banks?

**DN:** Yeah, post-financial crisis, the big banks, many of them looked like they weren't going to make it. That, we all know, gave rise to a lot of the regulation focused on the too-big-to-fail banks.

Part of the regulations was to basically make sure the banks have enough liquid assets to be able to meet any run on deposits. You've got to own either Treasuries or Ginnie Maes. Fannies and Freddies have a place there also. What is missing in that piece of regulation—after the fact, it's pretty obvious—is that these securities have enormous interest-rate risk. If you don't put in place regulations, or if the banks don't manage that interest-rate risk, then you can have the kind of problems we've had recently.

**JA:** Why do you feel like that was ignored in the last round of regulations?

**DN:** If you look at rate moves that we've seen in most of our lifetimes, they haven't been that large, and they've been orderly. I remember '94, when the Fed hiked pretty rapidly and raised rates 300 basis points and sent the mortgage market and lots of other markets into a tailspin, right?

But subsequent to that, we haven't had that. If you look at the hikes that got us to the financial crisis, rates were hiked at 17 consecutive meetings [June 2004 through June 2006] by 25 basis points. That took a long time, and it was really orderly, and in the end it tipped us into the financial crisis with the lag because it finally took housing down. It finally took the subprime market down, and the excesses all came to the surface.

Compare that to what we've got this time. You've got short rates at zero for a long period of time, long rates at very low levels thanks to QE [quantitative easing], and the central bank tells you this inflation is transitory. It can lead to some managers saying the risk is such that we can afford to own these securities. They produce positive returns to where our deposits are, and they're accretive even though the returns are not that high.

This is clearly a place where the regulators messed up. I mean, you push the banks to buy liquid securities. You talk about inflation being transitory, and then you raise rates by 525 basis points in under a year. Something's going to break, right?

**ERICA ADELBERG:** Do you think the Fed panicked? Do you think they were just trying to maintain credibility or do you think that's what they had to do?

**DN:** The Fed was a year late, and they had a year. And so that year of excess is something they had to make up for. QE should have ended, and rates should have started to get normalized at the start of '21, not at the start of '22. Housing was fine, equities were fine, unemployment stabilized. The economy handled it really well thanks to the Fed and what came out of DC, the Fed just overstayed its welcome by a good year.

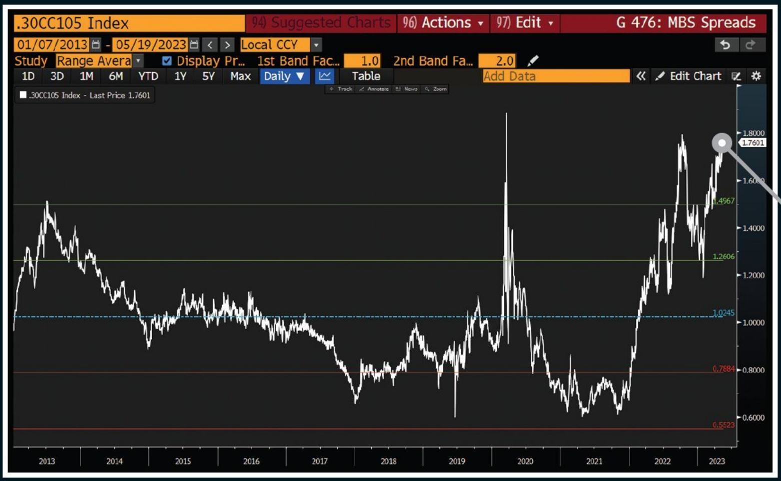
**JA:** Could you talk a bit about interest-only and inverse interest-only strips? What do you see happening there?

**DN:** Absolutely. I mentioned that government-guaranteed mortgages are really not a credit play. It's really the timing of cash flow that is uncertain. But there are a set of securities that actually take that prepayment uncertainty, and that risk is concentrated in a much larger way in these securities. The reason that happens is because a lot of the end buyers are like, "We like the credit, we like the fact that we get a spread over Treasuries, but we really don't want this prepayment risk that we don't understand too well. It's hard to model. There's a lot of work that's been done to model it. Yet every time we go through a new prepayment wave, there's always new learning, and we are like, 'Oh my God, I never thought about that.' " Right?

So a lot of institutions will say, "Just give us par price bonds, so we know what our yield is going to be. We're going to earn the coupon, and maybe we'll own it for longer, maybe we'll own it for shorter, but we know that's what we're going to earn on it." The collateralized mortgage obligation market will chop up agency MBS into what are prepayment-protected par bonds, par price bonds, where the principal will come back at par and the balance of the risk is put in securities where you basically own the prepayment risk. That's one way to tranche them. You make what is called a floating-rate security at par, and you make an inverse IO against it. That sounds complicated, but you just take a fixed-rate bond, and you sell a floater. And what you're left with is a security with no principal, just the fixed rate minus the coupon on the floater. So it's inverse floating rate, but it's interest only, since all the principal went to the floater. The other way to tranche the risk up is just take your agency MBS and break it up into the two cash-flow streams that correspond to monthly payments that are either interest or principal. Every month when you pay your mortgage, part of that payment is used to retire some principal and part of it is an interest payment against the debt outstanding. If you can separate those two cash-flow streams, you create securities that are called for the interest portion, interest-only securities. The IO. And for the principal only, the PO.

The IO is a very unique security. All it does is pay you interest, never pays you principal. The timing of how much interest you get is uncertain. There's no natural buyer for IO, and folks like us will buy IOs if they are priced at levels where we get compensated for the prepayment risk and more. So currently, for example, our portfolio of IO—and I'll use the word "IO" loosely to refer to IO and inverse IO—it's got a prepayment option-adjusted spread that's close to 600 basis points over Treasuries. You've got to ask the

**Fig. 1** To chart the spread of agency MBS to an average of US 5- and 10-year Treasuries, run **{.30CC105 <Index> GP <GO>}**.



The spread was more than two standard deviations above the 10-year average in May.

question: Government-guaranteed risk paying you 600 over Treasuries, what gives? How is that possible? That's because it has in it the concentrated prepayment risk that is hard to model over the next 30 years. For all the work that we've done in modeling it, the models continue to evolve. And you need to be compensated for that risk, and you get paid excess spread. So IOs have a place in portfolio for a couple of reasons.

One of the things that's very unique about IOs is when rates go up, most bonds go down in price. The IO security, on the other hand, when rates go up, prepayments slow down. You earn the interest stream for a longer period than you were planning to when you bought the bonds. The IO security actually goes up in price. That's called having negative duration. A lot of folks will buy IOs to manage portfolio duration. Mutual funds and money managers will do that. The second thing that's interesting about IO is that it just offers wide spreads. Right now they're yielding double digits, north of 10% yields. So folks will buy it for yield enhancement.

The way we look at it is neither of those two. The way we look at the IO market is: What are the option-adjusted spreads that the security can offer, and what is the likely path of this OAS going forward? Is it too wide? Are we going to get prepayment surprises to the negative side that will cause investors to be leery of this market and look to sell it and prices will go down, causing spreads to widen further? Or are we at a point in time when there's good prepayment news and, on top of that, you're getting paid 600 over Treasuries.

That scenario is really when IOs become very interesting. And that's where we find ourselves today. That's why probably our top pick in the agency marketplace right now is a portfolio of IO and inverse IO, hedged for rates. We think expected returns there are fairly high. They are well into the teens, if not more. This is without using any leverage.

The reason I say we really like where we are in the marketplace today is, look, Covid caused the Fed to cut rates to zero. And with a lag, housing markets reacted very favorably to what came out of the Fed and Washington in terms of the stimulus. The big surprise was how well housing did. Who would have thought that the US is going to be hit by this pandemic and home prices are going to go up at 20% per annum?

The prepayment models are still calibrated to the Covid experience. To those models we are buying IO and inverse IO, at option-adjusted spreads of 600 over Treasuries. What is the likely outcome for how these models are going to be changed going forward? They're going to have to be dialed back. For most folks that have built mortgage models, they have not seen a move like this in their lifetime. A 500-basis-point move in rates, where if you look at the average interest rate that US homeowners are paying on their mortgage, it's about 350 basis points below current market rates. We've never seen this. How can you build a model to data that you don't have? You can't fit any data. It will take a while for these models to catch up, and they will all get slower. The market's expectations of future prepayments will move faster than the models.

There are sectors where that might be a little faster, a little slower, but in aggregate you're seeing prepayments that continue to leave most analysts scratching their heads and saying, "Wow, a lot slower than expected." And so, yeah, the opportunity in the IO and inverse IO market—to us—is right now, right here. ● —*With Anibal Arrascue*

---

Asmundsson is FFM editor of *Bloomberg Markets*.

Technology

# Here's a Snapshot of Artificial Intelligence on the Terminal

By REED GANNON and DANIEL L. ROSEN

**THE POTENTIAL IMPACT** of artificial intelligence on finance is huge.

Large language models (LLMs) in particular will drive increases in efficiency across global markets, says Philip Raciti, head of US performing credit at Bardin Hill Investment Partners LP. "They are akin to historical moments of transformative technological breakthroughs, with an added gift of being easier to implement and proliferate than any other advancement in human history," he says.

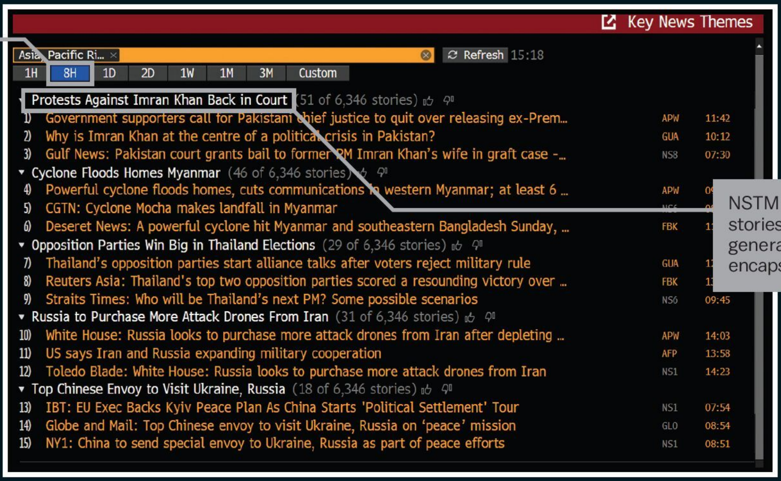
Yet for many financial professionals, the use of LLMs has been hindered by the models' lack of access to up-to-date financial data. Bloomberg recently unveiled the first publicly announced large language model specialized for the financial domain: BloombergGPT, which was trained on a mixed data set combining finance-specific and general-purpose data.

Here's a quick guide to a few deployments of AI across the Bloomberg terminal and some of the future use cases for financial professionals as outlined in *BloombergGPT: A Large Language Model for Finance*, a research paper available online at arxiv.org/abs/2303.17564.

**BLOOMBERG HAS ALREADY** incorporated AI into the terminal to enhance capabilities and simplify user experience. Take the Key News Themes function, for instance. Let's say you come into the office early one morning in New York and want to find the main news out of Asia overnight. Run **{NI ASIA <GO>}** for headlines of stories coded to Asia and the Pacific Rim, and on a typical day you may be looking at the most recent of almost 40,000 such articles. Instead of trying to read through them all, simply click the yellow Key Themes button on the red toolbar. The shortcut is **{NSTM <GO>}** (**FIG. 1**). The Key News Themes function uses an AI model to group similar articles together, identifying the five main themes over a particular period, such as eight hours or one day. Another algorithm generates a headline encapsulating each theme.

Run **{AID <GO>}** for the Automated Intelligence on Demand function. AID creates summaries of qualitative and quantitative data for a selected security, index or portfolio (**FIG. 2**). Go to **{DS <GO>}** for the new Document Search tool (**FIG. 3**). DS enables you to comb through 200 million financial documents and transcripts using related terms to generate more relevant and complete results. Run

**Fig. 1** Go to **{NSTM <GO>}** for the Key News Themes function.

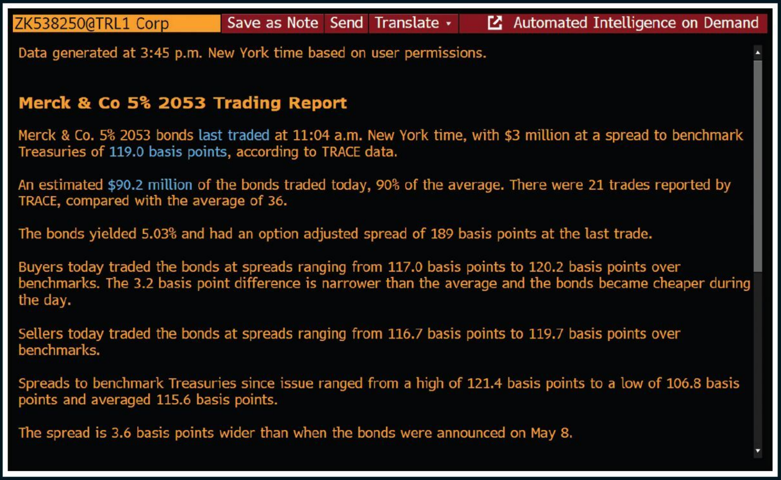


Select a time frame to see the main themes over that period.

NSTM groups similar stories together and generates a headline encapsulating them.

▾ Protests Against Imran Khan Back in Court (51 of 6,346 stories)
1) Government supporters call for Pakistani chief justice to quit over releasing ex-Prem... APW 11:42
2) Why is Imran Khan at the centre of a political crisis in Pakistan? GUA 10:12
3) Gulf News: Pakistan court grants bail to former PM Imran Khan's wife in graft case -... NS8 07:30
▾ Cyclone Floods Homes Myanmar (46 of 6,346 stories)
4) Powerful cyclone floods homes, cuts communications in western Myanmar; at least 6 ... APW 0
5) CGTN: Cyclone Mocha makes landfall in Myanmar
6) Deseret News: A powerful cyclone hit Myanmar and southeastern Bangladesh Sunday, ... FBK 1
▾ Opposition Parties Win Big in Thailand Elections (29 of 6,346 stories)
7) Thailand's opposition parties start alliance talks after voters reject military rule GUA 1
8) Reuters Asia: Thailand's top two opposition parties scored a resounding victory over ... FBK 1
9) Straits Times: Who will be Thailand's next PM? Some possible scenarios NS6 09:45
▾ Russia to Purchase More Attack Drones From Iran (31 of 6,346 stories)
10) White House: Russia looks to purchase more attack drones from Iran after depleting ... APW 14:03
11) US says Iran and Russia expanding military cooperation AFP 13:58
12) Toledo Blade: White House: Russia looks to purchase more attack drones from Iran NS1 14:23
▾ Top Chinese Envoy to Visit Ukraine, Russia (18 of 6,346 stories)
13) IBT: EU Exec Backs Kyiv Peace Plan As China Starts 'Political Settlement' Tour NS1 07:54
14) Globe and Mail: Top Chinese envoy to visit Ukraine, Russia on 'peace' mission GLO 08:54
15) NY1: China to send special envoy to Ukraine, Russia as part of peace efforts NS1 08:51

**Fig. 2** Go to **{AID <GO>}** to create a summary of qualitative and quantitative data for a selected security.



Data generated at 3:45 p.m. New York time based on user permissions.

**Merck & Co 5% 2053 Trading Report**

Merck & Co. 5% 2053 bonds last traded at 11:04 a.m. New York time, with $3 million at a spread to benchmark Treasuries of 119.0 basis points, according to TRACE data.

An estimated $90.2 million of the bonds traded today, 90% of the average. There were 21 trades reported by TRACE, compared with the average of 36.

The bonds yielded 5.03% and had an option adjusted spread of 189 basis points at the last trade.

Buyers today traded the bonds at spreads ranging from 117.0 basis points to 120.2 basis points over benchmarks. The 3.2 basis point difference is narrower than the average and the bonds became cheaper during the day.

Sellers today traded the bonds at spreads ranging from 116.7 basis points to 119.7 basis points over benchmarks.

Spreads to benchmark Treasuries since issue ranged from a high of 121.4 basis points to a low of 106.8 basis points and averaged 115.6 basis points.

The spread is 3.6 basis points wider than when the bonds were announced on May 8.

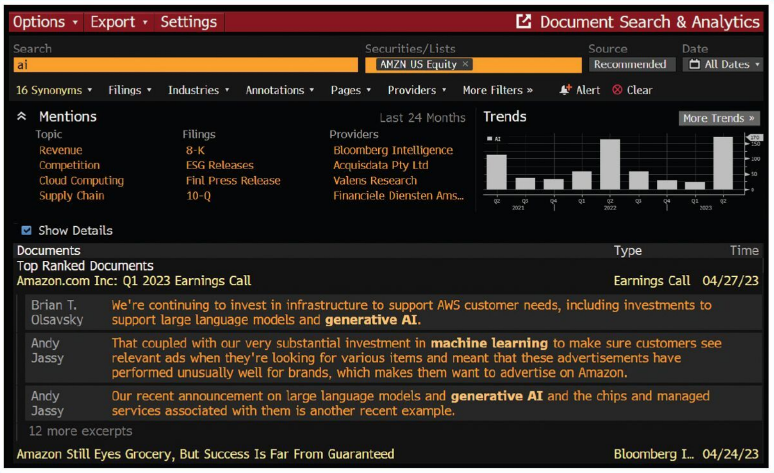
**{TREN <GO>}** to see the companies and topics getting the most media attention and reader interest, along with sentiment analysis.

In addition, the terminal's command line has been enhanced to allow you to type in exactly what you're looking for, without needing to memorize function mnemonics. Thanks to natural language processing, you can get an answer by simply typing a question such as "How many people work at Apple?" and pressing <GO>. Type "Graph Tesla and Ford" and hit <GO> to chart the stock price of the two automakers.

You can also tap natural language processing capabilities to create a universe of bonds that match your criteria: Just type "SRCH" followed by your terms. For US-dollar, investment-grade corporate bonds maturing in two to three years, for example, type "SRCH USD IG corps 2 to 3 years" and press <GO>.

**LOOKING FORWARD**, BloombergGPT will take user efficiency to a new level. One of its first applications, according to the research paper, will enable you to pull data from the terminal without having to know Bloomberg Query Language (BQL) syntax or how to write complex formulas. With BloombergGPT you'll be able to simply ►

**Fig. 3** Run **{DS <GO>}** for the new Document Search tool, which enables you to comb through 200 million financial documents and transcripts.



Search: ai

Securities/Lists: AMZN US Equity

Source: Recommended

Date: All Dates

| Topic | Filings | Providers |
|---|---|---|
| Revenue | 8-K | Bloomberg Intelligence |
| Competition | ESG Releases | Acquisdata Pty Ltd |
| Cloud Computing | Finl Press Release | Valens Research |
| Supply Chain | 10-Q | Financiele Diensten Ams... |

| Documents | Type | Time |
|---|---|---|
| Top Ranked Documents | | |
| Amazon.com Inc: Q1 2023 Earnings Call | Earnings Call | 04/27/23 |
| Amazon Still Eyes Grocery, But Success Is Far From Guaranteed | Bloomberg I... | 04/24/23 |

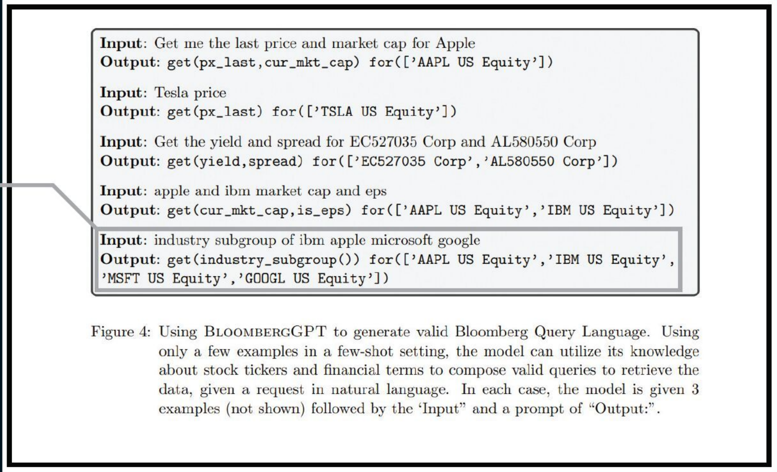
Brian T. Olsavsky: We're continuing to invest in infrastructure to support AWS customer needs, including investments to support large language models and **generative AI.**

Andy Jassy: That coupled with our very substantial investment in **machine learning** to make sure customers see relevant ads when they're looking for various items and meant that these advertisements have performed unusually well for brands, which makes them want to advertise on Amazon.

Andy Jassy: Our recent announcement on large language models and **generative AI** and the chips and managed services associated with them is another recent example.

12 more excerpts

**Fig. 4** The BloombergGPT paper is available at arxiv.org/pdf/2303.17564.



**Input**: Get me the last price and market cap for Apple
**Output**: `get(px_last,cur_mkt_cap) for(['AAPL US Equity'])`

**Input**: Tesla price
**Output**: `get(px_last) for(['TSLA US Equity'])`

**Input**: Get the yield and spread for EC527035 Corp and AL580550 Corp
**Output**: `get(yield,spread) for(['EC527035 Corp','AL580550 Corp'])`

**Input**: apple and ibm market cap and eps
**Output**: `get(cur_mkt_cap,is_eps) for(['AAPL US Equity','IBM US Equity'])`

**Input**: industry subgroup of ibm apple microsoft google
**Output**: `get(industry_subgroup()) for(['AAPL US Equity','IBM US Equity', 'MSFT US Equity','GOOGL US Equity'])`

Figure 4: Using BloombergGPT to generate valid Bloomberg Query Language. Using only a few examples in a few-shot setting, the model can utilize its knowledge about stock tickers and financial terms to compose valid queries to retrieve the data, given a request in natural language. In each case, the model is given 3 examples (not shown) followed by the 'Input" and a prompt of "Output:".

One use case is to translate plain language descriptions of data into BQL formulas.

describe the data you're looking for in plain English, and the language model will translate it into the appropriate function or formula for use in BQuant or Microsoft Excel worksheets (**FIG. 4**). This feature will dramatically reduce the barrier to entry for using BQL. With the power of BloombergGPT, data analysis and insight generation will become increasingly easy.

Since BloombergGPT's LLM has been trained on financial data sets, querying for information specific to finance-related tasks will be seamless. For example, users will be able to ask for information on a company's revenue over a given period or inquire about specific financial metrics such as earnings per share or return on investment.

By combining natural language processing with financial data, BloombergGPT will allow users to access and analyze vast amounts of information with unprecedented ease and efficiency. The new model has the potential to revolutionize the way financial professionals work and make decisions. ●

Gannon and Rosen are on the hedge fund sales team at Bloomberg in New York.

# Upgrade your view of mortgage & structured finance securities.

With Core Mortgage Premium, you can build unique data and analytical solutions using the same industry-leading services that power the Bloomberg Terminal®.

**Enhance your perspective with:**

- **Automated investment analysis**
- **World class models**
- **Extensive loan data**
- **Performance metrics & tests**

Learn more:

bloomberg.com/mortgages

The data included in these materials are for illustrative purposes only.
© 2020 Bloomberg L.P. 877080 0920

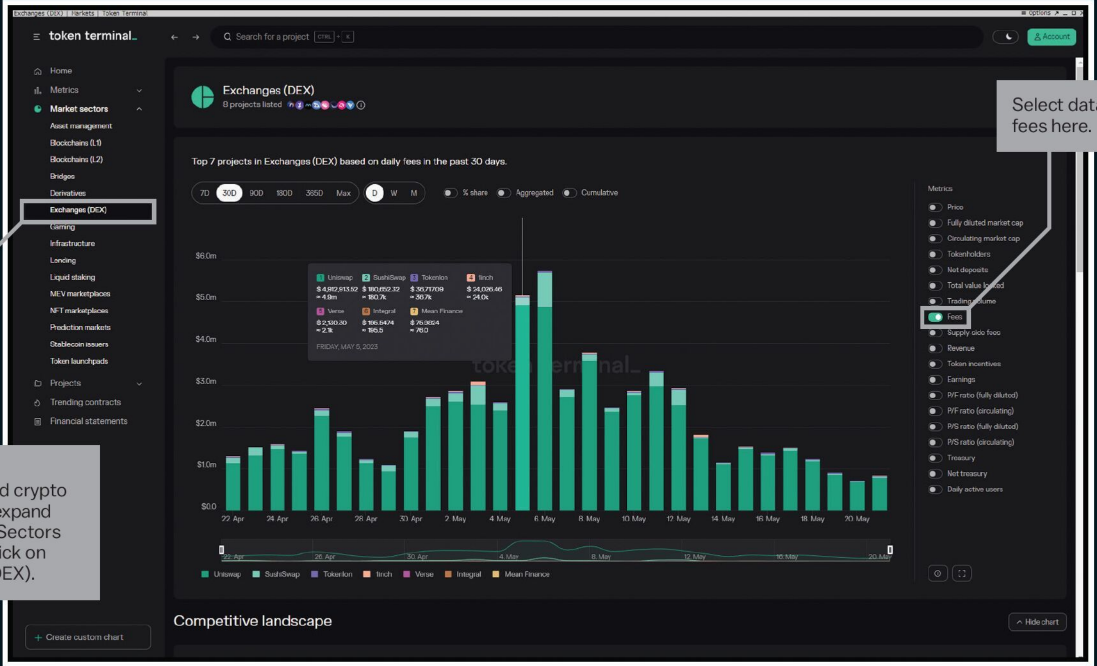
Bloomberg

IMAP Intraday Market Map
Global Intraday Return by Region
All Securities
Middle East & Africa (d)
0.45%
Asia Pacific (Emerging) (*)
0.49%
Western Europe (*)
1.27%
Global by region (*)
0.34%
Group by Region Sector

# Analyze Blockchains and Crypto Projects With Fundamental Data From Token Terminal

By ANASTASIYA NEFEDOVA

**Fig. 1** For a free trial of the Crypto Fundamentals app, go to **{APPS TOKEN <GO>}**.


token terminal_
Search for a project
Account
Home
Metrics
Market sectors
Asset management
Blockchains (L1)
Blockchains (L2)
Bridges
Derivatives
Exchanges (DEX)
Gaming
Infrastructure
Lending
Liquid staking
MEV marketplaces
NFT marketplaces
Prediction markets
Stablecoin issuers
Token launchpads
Projects
Trending contracts
Financial statements
Create custom chart
Exchanges (DEX)
8 projects listed
7D
30D
90D
180D
365D
Max
D
W
M
% share
Aggregated
Cumulative
$6.0m
$5.0m
$4.0m
$3.0m
$2.0m
$1.0m
$0.0
22 Apr
24 Apr
26 Apr
28 Apr
30 Apr
2 May
4 May
6 May
8 May
10 May
12 May
14 May
16 May
18 May
20 May
Uniswap
SushiSwap
Tokenlon
1inch
Verse
Integral
Mean Finance
Metrics
Price
Fully diluted market cap
Circulating market cap
Tokenholders
Net deposits
Total value locked
Trading volume
Fees
Supply-side fees
Revenue
Token incentives
Earnings
P/F ratio (fully diluted)
P/F ratio (circulating)
P/S ratio (fully diluted)
P/S ratio (circulating)
Treasury
Net treasury
Daily active users
Competitive landscape
Hide chart

Top 7 projects in Exchanges (DEX) based on daily fees in the past 30 days.

1 Uniswap $ 4,912,913.52 ≈ 4.9m
2 SushiSwap $ 180,652.32 ≈ 180.7k
3 Tokenlon $ 36,717.09 ≈ 36.7k
4 1inch $ 24,026.46 ≈ 24.0k
5 Verse $ 2,130.30 ≈ 2.1k
6 Integral $ 195.5474 ≈ 195.5
7 Mean Finance $ 75.9824 ≈ 76.0
FRIDAY, MAY 5, 2023

Select data such as fees here.

For data on decentralized crypto exchanges, expand the Market Sectors menu and click on Exchange (DEX).

**CRYPTO FUNDAMENTALS** by Token Terminal is a new application that provides financial and alternative data you can use to dig into leading blockchains and decentralized applications.

Provided by Token Terminal, a Helsinki-based aggregator of blockchain data, the app is available on the Bloomberg App Portal. Run **{APPS <GO>}**, type "crypto" in the amber field and click on the match. The shortcut is **{APPS TOKEN <GO>}**. Click on the button for a free trial.

Token Terminal, which was founded by lawyers interested in smart contracts, extracts data on decentralized projects and presents it like traditional financial metrics. "At Token Terminal, we believe that both blockchains and decentralized applications function similar to traditional marketplace businesses," says Rasmus Savander, commercial lead. Consider the example of a decentralized exchange, or DEX. Such an exchange enables permissionless trading and market making. So how can you evaluate the performance of different DEXes? In the Crypto Fundamentals app, click on Market Sectors and then on Exchanges (DEX). Use the toggles under Metrics to choose data to display. Select Trading Volume, for example, to chart volume on the top DEXes over a specified period. Toggle to display Fees (**FIG. 1**). As you can see, decentralized crypto exchange Uniswap predominates in terms of both volume and trading fees.

For more information about the app, contact bloomberg@tokenterminal.xyz or app_portal@bloomberg.net. ●

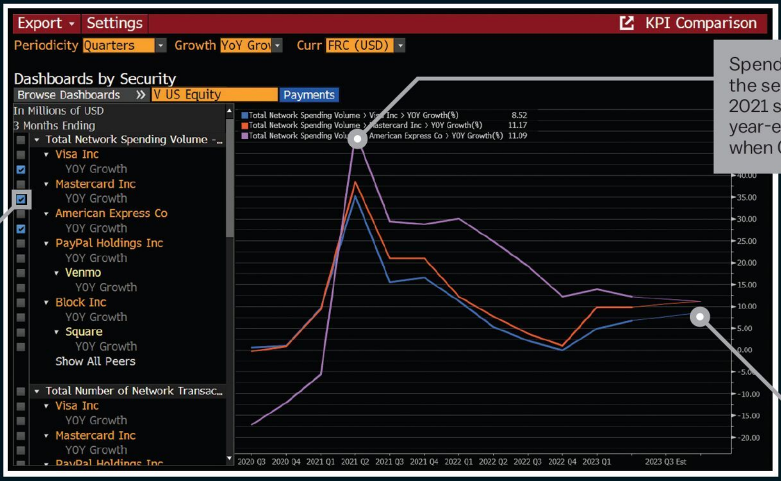
Nefedova is an App Portal product specialist at Bloomberg in London.

Climate change is at the center of everything.
Bloomberg Green is at the center of solving it.
Bloomberg Green
Solutions for a changing climate.
Premier Partner
McKinsey Sustainability
Scan the code or visit bloomberg.com/green to learn more.

# Find the Industries and Companies That Benefit From Rising Consumer Spending

By ZHUO ZHANG and KAREN LIN

**Fig. 1** Run **{V US <Equity> KPIC <GO>}** to compare analysts' estimates of Visa's network spending volume with those of peers.


Export
Settings
KPI Comparison
Dashboards by Security
Browse Dashboards
Payments
In Millions of USD
3 Months Ending
Total Network Spending Volume > Vi Inc > YOY Growth(%) 8.52
Total Network Spending Volume > astercard Inc > YOY Growth(%) 11.17
Total Network Spending Vol American Express Co > YOY Growth(%) 11.09
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.0
-10.00
-15.00
-20.00
2020 Q3
2020 Q4
2021 Q1
2021 Q2
2021 Q3
2021 Q4
2022 Q1
2022 Q2
2022 Q3
2022 Q4
2023 Q1
2023 Q3 Est

Periodicity Quarters
Growth YoY Grov
Curr FRC (USD)
V US Equity

☐ Total Network Spending Volume -...
☐ Visa Inc
☑ YOY Growth
☐ Mastercard Inc
☑ YOY Growth
☐ American Express Co
☑ YOY Growth
☐ PayPal Holdings Inc
☐ YOY Growth
☐ Venmo
☐ YOY Growth
☐ Block Inc
☐ YOY Growth
☐ Square
☐ YOY Growth
Show All Peers
☐ Total Number of Network Transac...
☐ Visa Inc
☐ YOY Growth
☐ Mastercard Inc
☐ YOY Growth

Tick the box to add a line for Mastercard.

Spending volume in the second quarter of 2021 spiked from the year-earlier quarter, when Covid-19 hit.

For the full year, analysts project spending volume will increase 7% for Visa.

**ARE CONSUMERS STILL** spending money? With costs increasing for many goods, wages stagnating and interest rates rising, they may be turning more cautious. Yet data show consumers are still ready to splurge in certain areas.

Indeed, analysts expect consumer spending to continue to rise. You can see that by delving into credit card company spending volumes with the KPI Comparison function.

Type "Visa" in the command line of a terminal screen and click on the V match from autocomplete. Then type "KPI" and click on the KPIC match. The shortcut is **{V US <Equity> KPIC <GO>}**. In the Total Network Spending Volume section, click the chart icon for YOY Growth for Visa Inc. Then tick the YOY Growth boxes for Mastercard Inc. and American Express Co. (**FIG. 1**).

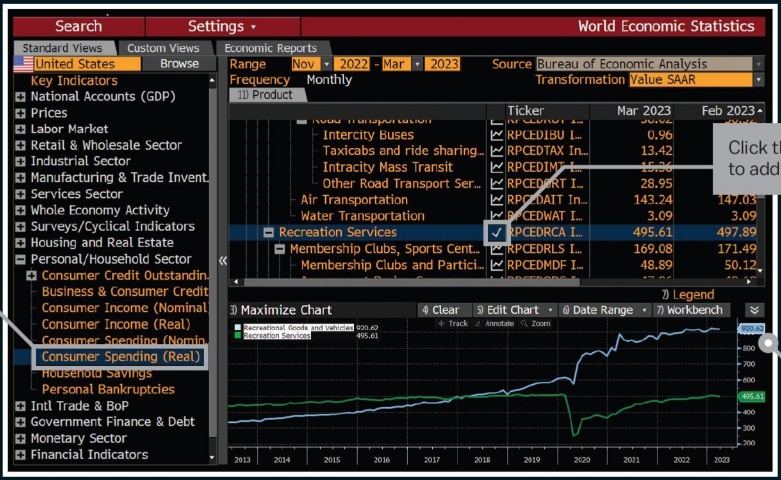
Spending volume growth in the second quarter of 2021 showed a huge spike from the year-earlier quarter, when Covid-19 had many people hunkering down in their homes and spending little. For the full year 2023, analysts project spending volume will increase 7% for Visa, 10% for Mastercard and 12% for Amex.

**WHEN CONSUMERS SPEND**, will it be on products, experiences or both? For insight into spending on goods versus services, type "US economic statistics" and click the ECST US match. The shortcut is **{ECST US <GO>}**. Click the plus sign next to Personal/Household Sector to expand the menu, then click on Consumer Spending (Real). The US Bureau of Economic Analysis tracks spending on categories such as recreational goods and vehicles and recreation services, for instance. Use the Transformation drop-down to select Value, then click the chart icons for the two data series (**FIG. 2**). Spending on goods exceeded that on services for the first time in 2017 and rose to an all-time high seasonally adjusted annual rate of $924 billion in January. By contrast, spending on recreation services, at $495 billion in March, was only climbing back toward pre-pandemic levels.

**WILL CONSUMER SPENDING** flow into dividend payouts? Bloomberg Dividend Forecasts (BDVD) provides up to 10 years of payout projections from a global team of Bloomberg analysts. To see dividend forecasts for the S&P 500, for example, go to **{SPX <Index> BDVD <GO>}**.

Some trends show up in aggregated data from BDVD (**FIG. 3**). Among S&P 500 sectors, consumer discretionary is forecast to have the second-biggest dividend growth this year, after real estate. Specialty retail is projected to account for 43% of total consumer

**Fig. 2** To compare spending on goods and services, go to **{ECST US <GO>}**.


Search
Settings ▾
World Economic Statistics
Standard Views
Custom Views
Economic Reports
United States
Browse
Key Indicators
National Accounts (GDP)
Prices
Labor Market
Retail & Wholesale Sector
Industrial Sector
Manufacturing & Trade Invent.
Services Sector
Whole Economy Activity
Surveys/Cyclical Indicators
Housing and Real Estate
Personal/Household Sector
Consumer Credit Outstandin.
Business & Consumer Credit
Consumer Income (Nominal)
Consumer Income (Real)
Consumer Spending (Nomin.
Consumer Spending (Real)
Household Savings
Personal Bankruptcies
Intl Trade & BoP
Government Finance & Debt
Monetary Sector
Financial Indicators
11) Product
2) Legend
3) Maximize Chart
4) Clear
5) Edit Chart ▾
6) Date Range ▾
7) Workbench
Track
Annotate
Zoom
Recreational Goods and Vehicles 920.62
Recreation Services 495.61
920.62
800
700
600
495.61
400
300
200
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023

Range Nov 2022 - Mar 2023
Frequency Monthly
Source Bureau of Economic Analysis
Transformation Value SAAR

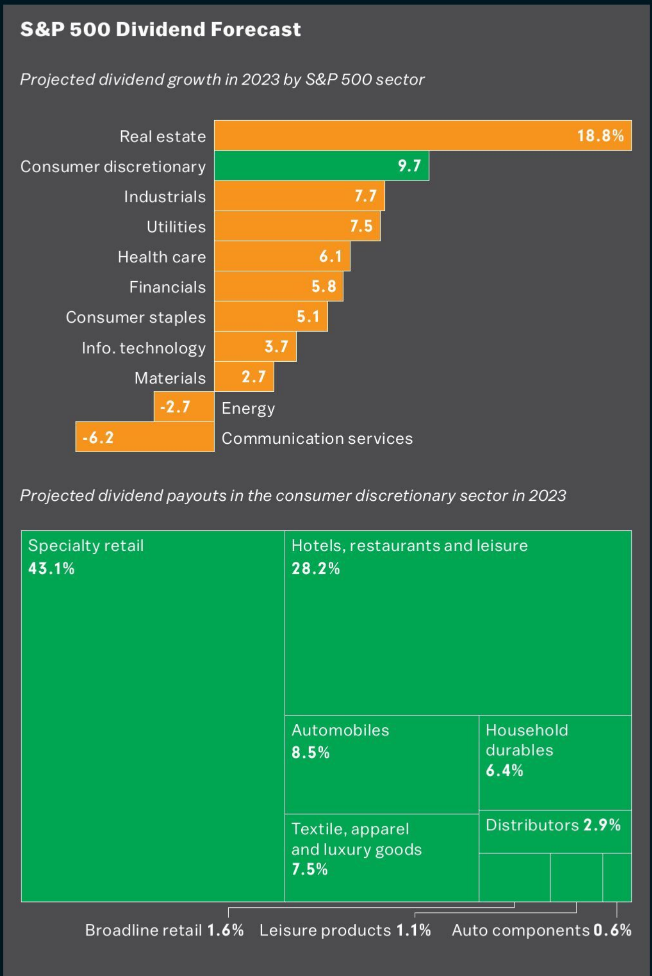
| | | Ticker | Mar 2023 | Feb 2023 |
|---|---|---|---|---|
| Intercity Buses | | RPCEDIBU I... | 0.96 | |
| Taxicabs and ride sharing... | | RPCEDTAX In... | 13.42 | |
| Intracity Mass Transit | | RPCEDIMT I... | 15.36 | |
| Other Road Transport Ser... | | RPCEDORT I... | 28.95 | |
| Air Transportation | | RPCEDAIT In... | 143.24 | 147.03 |
| Water Transportation | | RPCEDWAT I... | 3.09 | 3.09 |
| Recreation Services | ✓ | RPCEDRCA I... | 495.61 | 497.89 |
| Membership Clubs, Sports Cent... | | RPCEDRLS I... | 169.08 | 171.49 |
| Membership Clubs and Partici... | | RPCEDMDF I... | 48.89 | 50.12 |

Expand the Personal/Household Sector and click here for spending data.

Click the chart icon to add a line.

Spending on recreational goods is almost double that on services.

**Fig. 3**



**Source**: {BDVD <GO>}

discretionary payouts, while hotels, restaurants and leisure are forecast to make up 28%.

Let's zoom in to examine companies in some subindustries of the consumer discretionary sector. Run **{KPIC <GO>}** again and expand the Browse Dashboards sidebar if it isn't already open. Click on Consumer Discretionary to expand the list. Then click on Casinos & Gaming – APAC, and you can chart hotel occupancy for selected hotels in Macau, where the rate is projected to increase over coming quarters. Click on Cruise Lines, and you can see a similar trend for companies such as Royal Caribbean Cruises, Carnival and Norwegian Cruise Line.

**TO DIG INTO** forward-looking annual sales revisions, use the Watchlist Analytics function. Type "watchlist" and click on the WATC match. The shortcut is **{WATC <GO>}**. Click into the field in the upper left of the screen and select SPX Index. Use the Group By drop-down to select BICS Sector. Then click the Estimates tab and the Revisions (Y) subtab. Click the FY1 Rev 3MChg column heading to sort by analysts' three-month revisions to revenue estimates. As of early May, consumer discretionary was second, with a 1.5% upward revision of sales, trailing only utilities.

Next, use the Group By drop-down to select BICS Sub Industry. Click the Growth subtab under the Estimates tab. Casinos and gaming had the highest blended forward 12-month earnings-per-share growth as of early May. Click on the subindustry to display its constituent companies. Las Vegas Sands Corp., which operates in the US, Macau and Singapore, is expected to have the largest blended forward 12-month sales and EPS growth, according to Bloomberg consensus estimates. Looking across the entire S&P 500, several cruise lines also appear near the top of the list. Analysts expect revenue to pick up as travelers return to the seas. ●

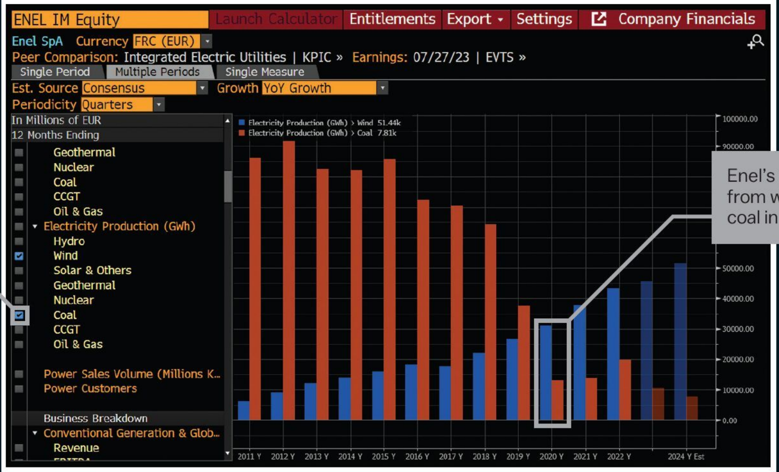
---

Zhang is a dividend analyst and Lin is a fundamentals analyst on the data team at Bloomberg in Princeton, New Jersey.

# Track How the Energy Transition Shows Up in a Company's Financial Metrics

By REBECCA BAIONE, JAMES KESSLER and TIMOTHY DUCHLINSKI

**Fig.1** Run **{ENEL IM <Equity> MODL SOURCE <GO>}** to see estimates and actuals for Enel.



ENEL IM Equity
Launch Calculator
Entitlements
Export
Settings
Company Financials
Single Period
Multiple Periods
Single Measure
Electricity Production (GWh) > Wind 51.44k
Electricity Production (GWh) > Coal 7.81k
100000.00
90000.00
50000.00
40000.00
30000.00
20000.00
10000.00
0.00
2011 Y
2012 Y
2013 Y
2014 Y
2015 Y
2016 Y
2017 Y
2018 Y
2019 Y
2020 Y
2021 Y
2022 Y
2024 Y Est

Enel SpA Currency FRC (EUR)

Peer Comparison: Integrated Electric Utilities | KPIC » Earnings: 07/27/23 | EVTS »

Est. Source Consensus Growth YoY Growth

Periodicity Quarters

In Millions of EUR

12 Months Ending

- ☐ Geothermal
- ☐ Nuclear
- ☐ Coal
- ☐ CCGT
- ☐ Oil & Gas
- ☐ Electricity Production (GWh)
  - ☐ Hydro
  - ☑ Wind
  - ☐ Solar & Others
  - ☐ Geothermal
  - ☐ Nuclear
  - ☑ Coal
  - ☐ CCGT
  - ☐ Oil & Gas
- ☐ Power Sales Volume (Millions K...
- ☐ Power Customers

Business Breakdown

- Conventional Generation & Glob...
  - ☐ Revenue

Chart data for electricity production from coal by ticking the box here.

Enel's production from wind surpassed coal in 2020.

**REDUCING EMISSIONS** to prevent global temperatures from rising more that 1.5C is going to require massive changes in many industries, particularly energy.

That, in turn, is going to need huge outlays of capital. Last year investment in the global energy transition topped $1 trillion for the first time, according to BloombergNEF. What's more, BNEF forecasts that achieving net-zero carbon emissions by 2050 is going to require total investment of almost $200 trillion.

So how can you evaluate the steps that companies are taking now to meet such goals? Use Bloomberg tools to track financial metrics that reflect a particular company's commitment to environmental performance. You can then map individual energy assets and see what other companies turn up in its supply lines.

**LET'S TAKE A LOOK** at one of the largest energy companies in the world, Rome-based Enel SpA. Type "Enel" in the command line of a Bloomberg screen and click on the ENEL IM Equity match. In the menu of functions that appears, click on MODL. MODL lets you see a company's estimates and actuals with detailed breakdowns of operating metrics.

Click on the Multiple Periods tab. The shortcut is **{ENEL IM <Equity> MODL SOURCE <GO>}**. Use the Growth drop-down to select None. For Periodicity, select Annuals. Then scroll down to the Company Operating Metrics section. MODL shows both installed capacity and electricity production by type. To compare Enel's production from wind with its generation from coal, click on the chart icon to the left of Wind. Then tick the box for Coal (**FIG. 1**).

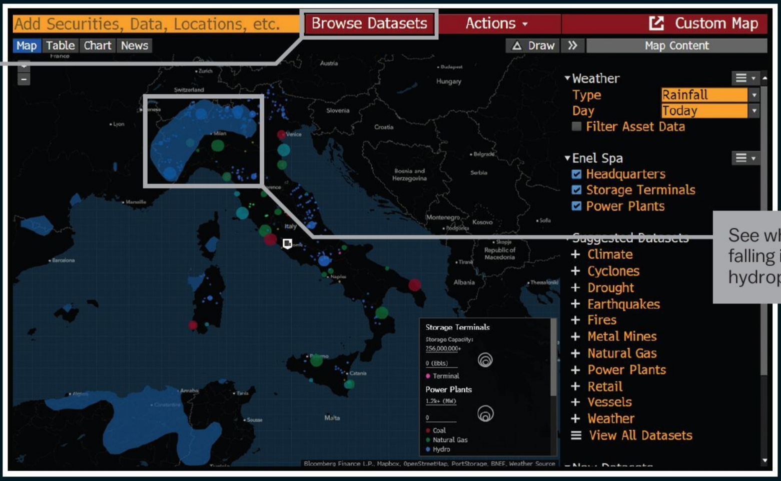
Enel's electricity production from renewable power sources such as wind is increasing, while its power produced by coal plants is declining. Those trends suggest that Enel is making a push in the energy transition.

**IN EUROPE**, soaring energy bills have prompted legislation that can benefit energy suppliers. In 2022, Italy approved urgent measures to contain the costs of electricity and natural gas, develop renewable energies and relaunch industrial policies.

Using MODL, you can track how Enel reduced oil and gas capacity and production in the wake of such legislation. Analysts estimate this downward trend will continue.

In Italy, Enel has 33 power plants that are planned or under

**Fig. 2** To map the company's power plants in Italy, run **{ENEL IM <Equity> CMAP <GO>}**.

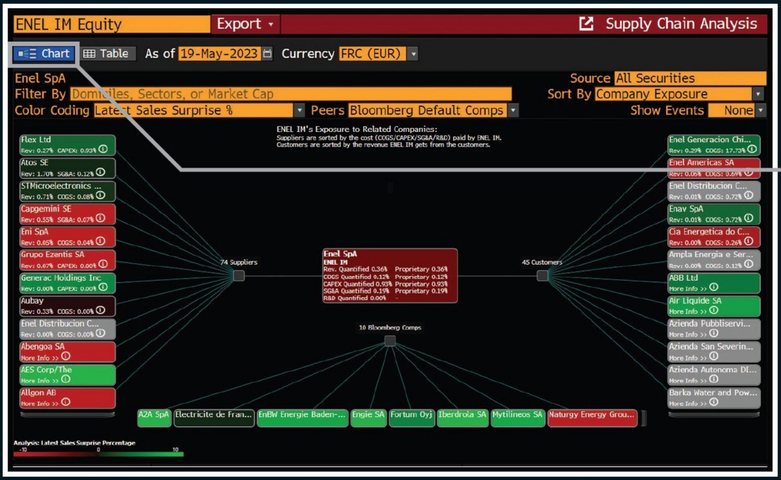

Add Securities, Data, Locations, etc.
Browse Datasets
Actions
Custom Map
Map
Table
Chart
News
Draw
Map Content
Weather
Enel Spa
Headquarters
Storage Terminals
Power Plants
Suggested Datasets
Climate
Cyclones
Drought
Earthquakes
Fires
Metal Mines
Natural Gas
Power Plants
Retail
Vessels
Weather
View All Datasets
Storage Terminals
Power Plants
Coal
Natural Gas
Hydro

Type Rainfall
Day Today
Filter Asset Data

Click here to add datasets such as weather.

See where rain is falling in relation to hydropower assets.

**Fig. 3** To examine Enel's supply chain, run **{ENEL IM <Equity> SPLC <GO>}**.


ENEL IM Equity
Export
Supply Chain Analysis
Chart
Table
Flex Ltd
Atos SE
STMicroelectronics ...
Capgemini SE
Eni SpA
Grupo Ezentis SA
Generac Holdings Inc
Aubay
Enel Distribucion C...
Abengoa SA
AES Corp/The
Allgon AB
74 Suppliers
Enel SpA
45 Customers
10 Bloomberg Comps
Enel Generacion Chi...
Enel Americas SA
Enel Distribucion C...
Enav SpA
Cia Energetica do C...
Ampla Energia e Ser...
ABB Ltd
Air Liquide SA
Azienda Pubbliservi...
Azienda San Severin...
Azienda Autonoma DI...
Barka Water and Pow...
A2A SpA
Electricite de Fran...
EnBW Energie Baden-...
Engie SA
Fortum Oyj
Iberdrola SA
Mytilineos SA
Naturgy Energy Grou...

As of 19-May-2023
Currency FRC (EUR)
Enel SpA
Source All Securities
Filter By Domiciles, Sectors, or Market Cap
Sort By Company Exposure
Color Coding Latest Sales Surprise %
Peers Bloomberg Default Comps
Show Events None

Click here for a visualization of the company's relationships.

construction, as of May. Those facilities will add a total of 287 megawatts of capacity.

To see Enel's existing and proposed Italian assets, run **{CMAP <GO>}** and zoom in on Italy (**FIG. 2**). Hydropower accounts for the largest slice of Enel's installed capacity. Bloomberg's mapping functionality lets you overlay datasets that can show weather events such as rainfall. Click on the Browse Datasets button on the red toolbar. Use the scroll bar to navigate to Weather under Categories. Hit the Add to Map button. Use the Type drop-down to select Rainfall and you can see where rain has fallen in Italy today.

**AS COMPANIES BECOME** more vigilant about the environmental impact of their own operations, many are also monitoring the performance of companies in their supply chains. To explore Enel's supply-chain relationships, go to **{SPLC <GO>}**. Click on Table and on the ESG tab, and you can see ESG scores and greenhouse gas emissions data for the company's customers and suppliers. Hit Chart for a visualization of Enel's relationships (**FIG. 3**).

Enel is not the only energy company increasing renewable capacity while pulling back on fossil fuels. To compare others, go to **{KPIC <GO>}**. Expand the Browse Dashboards sidebar if it isn't already. Click on Utilities and then on Integrated Electric Utilities for a fuller picture of capacity generation by European utilities' adoption of renewable energies versus other fuels. ● —*With Keith Gerstein*

---

Baione, Kessler and Duchlinski are on Bloomberg's data team in Princeton, New Jersey.

# Chart Bitcoin Trends With Heikin-Ashi, Stochastic RSI and Vol Bands

By MICHAEL BRIODY, ADRIANA BRUNO and BRIAN COLE

**A LOT HAS CHANGED** in the crypto ecosystem over the past 12 months. Yet one constant remains: To gauge the industry's health, participants track Bitcoin. With uncertainty about regulation weighing on the market, being able to identify price direction remains key.

One tool that's particularly helpful for spotting changes in trends is Bloomberg's Heikin-Ashi Chart. Often translated from the Japanese as "average pace," Heikin-Ashi candlesticks smooth out price moves to better capture directional moves and reversals. In essence, Heikin-Ashi represents an average of price movements.

How does that work? The open of each Heikin-Ashi candle is the average of the open and close of the prior bar—in other words, the midpoint of the previous bar. The highs and lows of the wicks are the highest and lowest prices traded over the period of the bar. The close of each candle is the average of the open, high, low and close of the bar.

For a Heikin-Ashi chart of Bitcoin, type "Bitcoin" in the command line of a terminal screen and click on the XBTUSD Curncy match. Then type "Heikin-Ashi" and click the GPHA match. The shortcut is **{XBTUSD <Curncy> GPHA <GO>}**. For a monthly chart of the past five years, use the periodicity drop-down to select Monthly 5Y. Adding a panel with regular candles shows how Heikin-Ashi helps clarify trends (**FIG. 1**). The Heikin-Ashi candles clearly depict the downtrend in 2022, while the traditional chart shows a mix of up and down candles.

### Stochastic RSI

Use studies to supplement your analysis in Heikin-Ashi charts. To identify shifts in macro trends, one study that does a great job on a monthly periodicity is Stochastic Relative Strength Index.

Some background: Relative strength index, or RSI, is one of the most commonly used technical studies. It compares the size of up moves with down moves during a selected number of trailing periods, commonly 14, and then indexes that relative strength on a scale of 1 to 100. When down moves predominate and the RSI reaches a set oversold level—typically 30—the indicator generates a buy signal. Similarly, it produces a sell signal when it hits a certain overbought level, commonly 70.

Stochastic RSI was designed to increase volatility of traditional RSI. Given that Stochastic RSI reacts faster, it's perfect for a highly volatile security such as Bitcoin. Stochastic RSI is a calculation of RSI's own closing levels rather than the close of the security. Here's how it's calculated:

Stochastic RSI = (RSI - Min)/(Max - Min) * 100
RSI = Relative strength index
Min = Lowest RSI value over 14-bar period
Max = Highest RSI value over 14-bar period

You can create your own version of the study by going to **{STDY <GO>}** and building it as shown in this screenshot (**FIG. 2**).

A 10-year monthly Heikin-Ashi chart with a Stochastic RSI study shows the signals (**FIG. 3**). The orange line is a three-bar simple moving average of Stochastic RSI. The green line marking the value of 20 represents the lower area that must be breached for a security to become oversold. The red line marking the value of 80 represents the higher level that must be breached for a security to become overbought. When Stochastic RSI breaches above 20 from below, that's typically a buy signal. When it crosses 80 from above, it's a sell signal.

On this chart, the first bull signal occurred in 2015, early in a two-year rally. A second came is 2019, at the start of that year's rally. In addition to these traditional buy signals, Stochastic RSI in 2020 breached its resistance, which it had been developing over a 10-month period. Such moves can offer another way in which Stochastic RSI can be used to help navigate markets when the indicator is between oversold or overbought levels.

Over the lifetime of Bitcoin, Stochastic RSI has generated four sell signals. Bitcoin experienced a 77% drop on average after those signals, over an average span of 13 months. This January, early in this year's rebound, a buy signal occurred. As of late May, Stochastic RSI was approaching overbought territory.

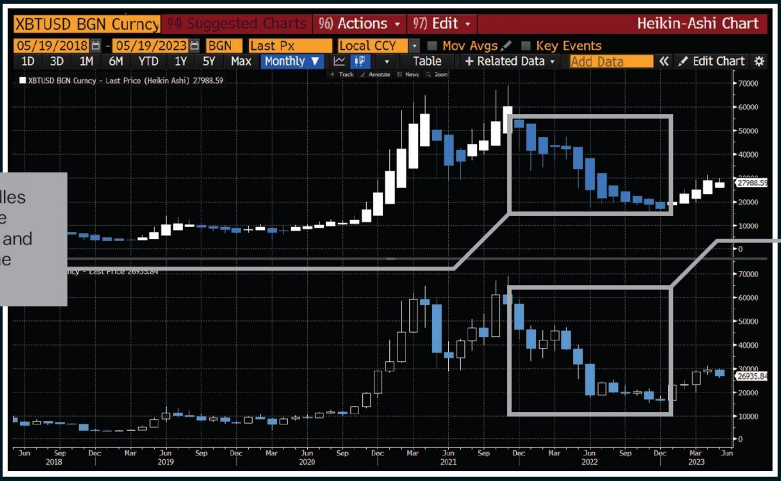
### Volatility Bands

Another custom study you can use for tracking Bitcoin is volatility bands. Essentially, what the study does is calculate a moving average and then plots an upper band calculated by adding a multiple of one-half the realized volatility to the moving average level. A lower band is a multiple of minus half the vol. The calculation is as follows:

Vol = 30-day realized volatility as of each weekly close
MA = 30-week moving average

▶

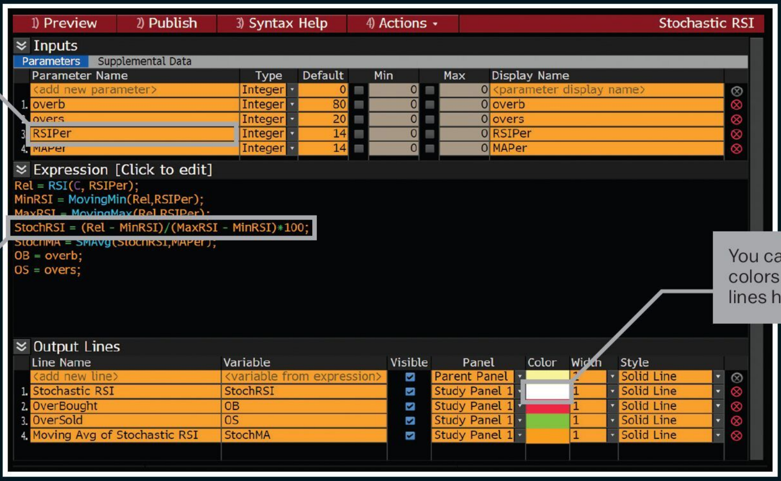
**Fig. 1** For a Heikin-Ashi chart of Bitcoin, go to **{XBTUSD <Crncy> GPHA <GO>}**.



Heikin-Ashi candles smooth out price action so trends and reversals become clearer.

By contrast, traditional candles show a mix of up and down bars for the period.

**Fig. 2** To create your own Stochastic RSI study, go to **{STDY <GO>}**. Here the screen shows the parameters, expression and outputs used to build the study.



| | Parameter Name | Type | Default | Min | Max | Display Name |
|---|---|---|---|---|---|---|
| | <add new parameter> | Integer | 0 | 0 | 0 | <parameter display name> |
| 1. | overb | Integer | 80 | 0 | 0 | overb |
| 2. | overs | Integer | 20 | 0 | 0 | overs |
| 3. | RSIPer | Integer | 14 | 0 | 0 | RSIPer |
| 4. | MAPer | Integer | 14 | 0 | 0 | MAPer |

Expression [Click to edit]

```
Rel = RSI(C, RSIPer);
MinRSI = MovingMin(Rel,RSIPer);
MaxRSI = MovingMax(Rel,RSIPer);
StochRSI = (Rel - MinRSI)/(MaxRSI - MinRSI)*100;
StochMA = SMAvg(StochRSI,MAPer);
OB = overb;
OS = overs;
```

Output Lines

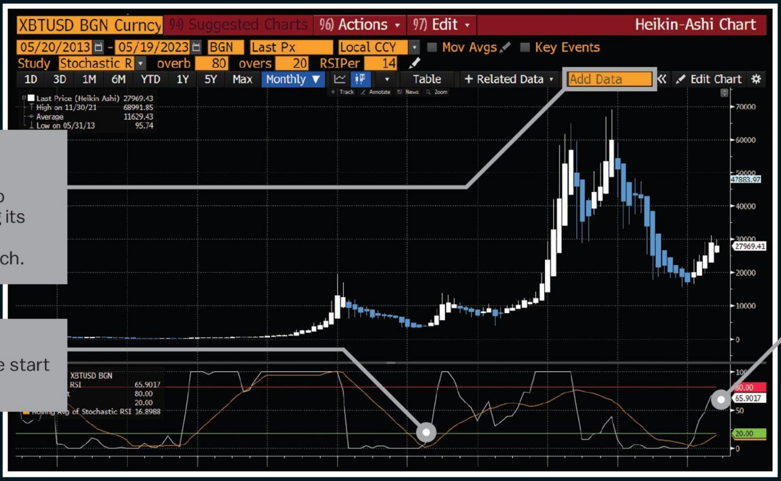
| | Line Name | Variable | Visible | Panel | Color | Width | Style |
|---|---|---|---|---|---|---|---|
| | <add new line> | <variable from expression> | ☑ | Parent Panel | 🟨 | 1 | Solid Line |
| 1. | Stochastic RSI | StochRSI | ☑ | Study Panel 1 | ⬜ | 1 | Solid Line |
| 2. | OverBought | OB | ☑ | Study Panel 1 | 🟥 | 1 | Solid Line |
| 3. | OverSold | OS | ☑ | Study Panel 1 | 🟩 | 1 | Solid Line |
| 4. | Moving Avg of Stochastic RSI | StochMA | ☑ | Study Panel 1 | 🟧 | 1 | Solid Line |

This parameter uses the typical 14 periods for the number of trailing periods used by RSI.

Here's the crux of the calculation.

You can choose colors for the output lines here.

**Fig. 3** A 10-year monthly chart with the Stochastic RSI study shows the signals.

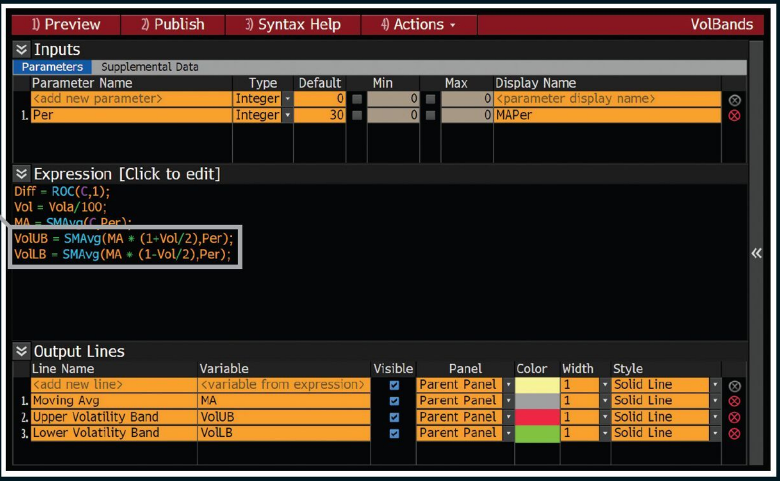


Once you save a custom study, you can add it to a chart by typing its name here and clicking the match.

A signal was generated at the start of 2019's rally.

After a buy signal in January, the Stochastic RSI line was approaching the overbought level.

**Fig.4** Here are the parameters, expression and output for the volatility bands study.



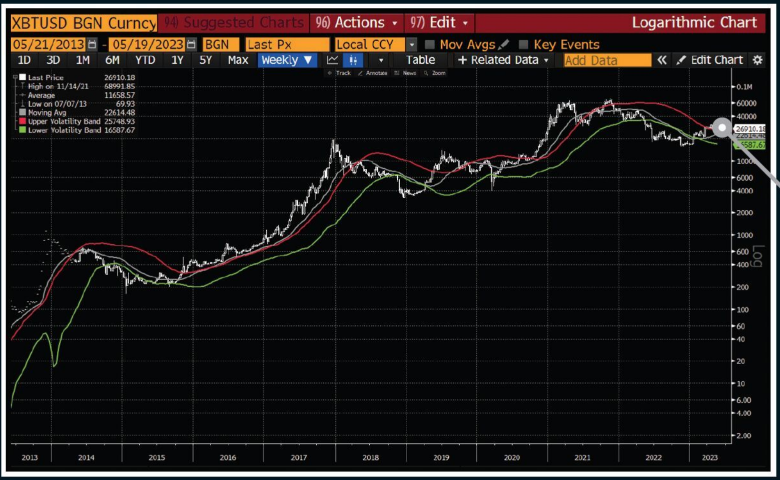
| | Parameter Name | Type | Default | Min | Max | Display Name |
|---|---|---|---|---|---|---|
| | <add new parameter> | Integer | 0 | 0 | 0 | <parameter display name> |
| 1. | Per | Integer | 30 | 0 | 0 | MAPer |

```
Diff = ROC(C,1);
Vol = Vola/100;
MA = SMAvg(C,Per);
VolUB = SMAvg(MA * (1+Vol/2),Per);
VolLB = SMAvg(MA * (1-Vol/2),Per);
```

| | Line Name | Variable | Visible | Panel | Color | Width | Style |
|---|---|---|---|---|---|---|---|
| | <add new line> | <variable from expression> | ☑ | Parent Panel | 🟨 | 1 | Solid Line |
| 1. | Moving Avg | MA | ☑ | Parent Panel | ⬜ | 1 | Solid Line |
| 2. | Upper Volatility Band | VolUB | ☑ | Parent Panel | 🟥 | 1 | Solid Line |
| 3. | Lower Volatility Band | VolLB | ☑ | Parent Panel | 🟩 | 1 | Solid Line |

The upper band adds half the realized volatility above the moving average, while the lower band subtracts it.

**Fig.5** On a 10-year weekly logarithmic chart, Bitcoin has breached the upper band six times.



After breaching the upper band in April, Bitcoin traded above it in May.

UB = 30-week simple moving average of MA * (1+Vol/2)
LB = 30-week simple moving average of MA * (1-Vol/2)

The formula is shown in a **{STDY <GO>}** screen (**FIG. 4**).

A 10-year weekly logarithmic chart of Bitcoin shows the cryptocurrency has breached the upper band six times, most recently this year (**FIG. 5**). In the five realized instances, three confirmed the start of a bull run. The occurrence in 2019 happened right before Covid affected the markets, and the fifth came at the start of the 2022 bear market. Vol bands can be an interesting way to analyze the market as it furnishes a support level to indicate if Bitcoin is in for a further downturn.

As of May 14, the upper band was at a level of $25,754, while Bitcoin traded above that, at $26,952. Ideally, bulls would want Bitcoin to hold above the upper band level for the next few months. Another point to note is that Bitcoin in its 2022 decline behaved much as it did during its 2014-15 bear market: Price breached the lower band, retested the lower band, held as support and then went on to breach the upper band and hold as support. The best-case scenario would be for Bitcoin to continue to hold the upper band as support, as it is doing in this bull run.

Using these charts together can help you navigate potential entries and exits, depending on which path Bitcoin ends up following, pessimistic or optimistic. ●

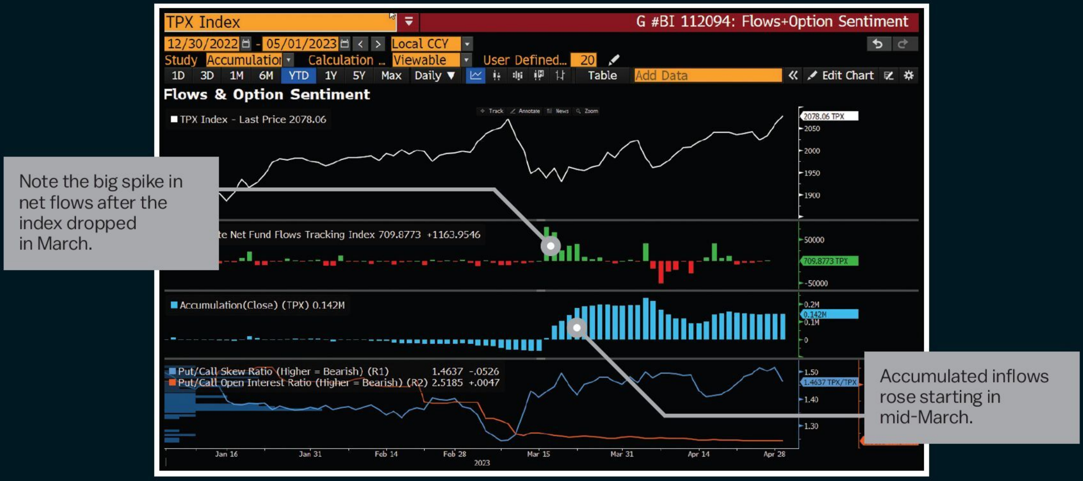
---

Briody is an FX/crypto market specialist, Bruno is a data visualization product specialist, and Cole is an advanced equity specialist at Bloomberg in New York.

# See a Fund's Factor Tilts and What's Been Working in a Market

By ADAM LYNNE

**Fig. 1** To view aggregated flows into funds tracking the Topix, run **{TPX <Index> GP <GO>}**, click Suggested Charts on the red toolbar and select Flow & Option Sentiment.


TPX Index
G #BI 112094: Flows+Option Sentiment
12/30/2022 - 05/01/2023
Local CCY
Study Accumulatio
Calculation ...
Viewable
User Defined... 20
1D 3D 1M 6M YTD 1Y 5Y Max Daily
Table
Add Data
Edit Chart
Flows & Option Sentiment
Track Annotate News Zoom
TPX Index - Last Price 2078.06
2078.06 TPX
2050
2000
1950
1900
te Net Fund Flows Tracking Index 709.8773 +1163.9546
50000
709.8773 TPX
-50000
Accumulation(Close) (TPX) 0.142M
0.2M
0.142M
0.1M
0
Put/Call Skew Ratio (Higher = Bearish) (R1) 1.4637 -.0526
Put/Call Open Interest Ratio (Higher = Bearish) (R2) 2.5185 +.0047
1.50
1.4637 TPX/TPX
1.40
1.30
Jan 16
Jan 31
Feb 14
Feb 28
2023
Mar 15
Mar 31
Apr 14
Apr 28

Note the big spike in net flows after the index dropped in March.

Accumulated inflows rose starting in mid-March.

**GLOBAL INVESTORS MOVED** money into Japanese equity income strategies after market turmoil this year.

As bank meltdowns in the US and Europe rattled stocks, the Topix, which is how the Tokyo Stock Price Index is generally known, dropped 7% from March 9 to March 20. By the middle of the month, though, inflows into funds tracking the Japanese benchmark rose sharply, with income strategies attracting the most investment. Value and dividend-paying stocks beat the index through early May.

Use Bloomberg's GP, DES, ETF and FTW functions, as well as a new one, TLTS, to analyze flows, exposures and the performance of exchange-traded funds that invest in Japanese stocks.

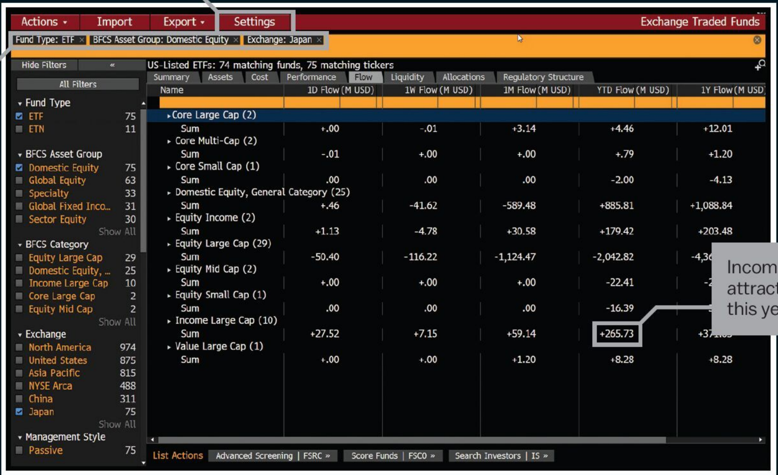
**TO MEASURE AGGREGATED FLOWS** into funds tracking the Topix, type "Topix" in the command line of a terminal screen and select the TPX Index match from autocomplete. Click on GP from the menu of functions. The shortcut is **{TPX <Index> GP <GO>}**. Click the Suggested Charts button on the red toolbar and select Flow & Option Sentiment. For a year-to-date chart, click YTD (**FIG. 1**).

Note the big spike in net fund flows—the green bars–after the March drop in the Topix. Accumulated fund inflows into the index—the blue histograms—rose starting in mid-March, with something of a slowdown in April. The put/call skew ratio spiked during the selloff but has stabilized.

**TO FIND ETFS THAT TRACK** the Topix, run **{TPX <Index> DES <GO>}** and click the Related tab. A total of 27 ETFs replicate the benchmark and its total return and net total return versions. Click the 3M Flows column to rank them. BlackRock Inc.'s iShares Core Topix ETF had attracted the most flows over the three months through early May.

►

**Fig. 2** To dig into which strategies are attracting inflows, go to **{ETF <GO>}**.



Fund Type: ETF × BFCS Asset Group: Domestic Equity × Exchange: Japan ×

US-Listed ETFs: 74 matching funds, 75 matching tickers

| Filter | Count |
|---|---|
| **Fund Type** | |
| ☑ ETF | 75 |
| ☐ ETN | 11 |
| **BFCS Asset Group** | |
| ☑ Domestic Equity | 75 |
| ☐ Global Equity | 63 |
| ☐ Specialty | 33 |
| ☐ Global Fixed Inco... | 31 |
| ☐ Sector Equity | 30 |
| **BFCS Category** | |
| ☐ Equity Large Cap | 29 |
| ☐ Domestic Equity, ... | 25 |
| ☐ Income Large Cap | 10 |
| ☐ Core Large Cap | 2 |
| ☐ Equity Mid Cap | 2 |
| **Exchange** | |
| ☐ North America | 974 |
| ☐ United States | 875 |
| ☐ Asia Pacific | 815 |
| ☐ NYSE Arca | 488 |
| ☐ China | 311 |
| ☑ Japan | 75 |
| **Management Style** | |
| ☐ Passive | 75 |

| Name | 1D Flow (M USD) | 1W Flow (M USD) | 1M Flow (M USD) | YTD Flow (M USD) | 1Y Flow (M USD) |
|---|---|---|---|---|---|
| Core Large Cap (2) | | | | | |
| Sum | +.00 | -.01 | +3.14 | +4.46 | +12.01 |
| Core Multi-Cap (2) | | | | | |
| Sum | -.01 | +.00 | +.00 | +.79 | +1.20 |
| Core Small Cap (1) | | | | | |
| Sum | .00 | .00 | .00 | -2.00 | -4.13 |
| Domestic Equity, General Category (25) | | | | | |
| Sum | +.46 | -41.62 | -589.48 | +885.81 | +1,088.84 |
| Equity Income (2) | | | | | |
| Sum | +1.13 | -4.78 | +30.58 | +179.42 | +203.48 |
| Equity Large Cap (29) | | | | | |
| Sum | -50.40 | -116.22 | -1,124.47 | -2,042.82 | -4,36 |
| Equity Mid Cap (2) | | | | | |
| Sum | +.00 | +.00 | +.00 | -22.41 | -2 |
| Equity Small Cap (1) | | | | | |
| Sum | .00 | .00 | .00 | -16.39 | |
| Income Large Cap (10) | | | | | |
| Sum | +27.52 | +7.15 | +59.14 | +265.73 | +37 |
| Value Large Cap (1) | | | | | |
| Sum | +.00 | +.00 | +1.20 | +8.28 | +8.28 |

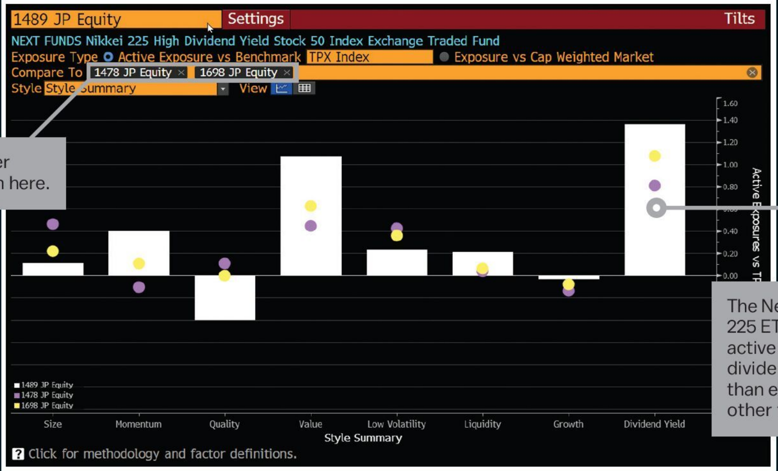
Actions
Import
Export
Settings
Exchange Traded Funds
Hide Filters
All Filters
Show All
Summary
Assets
Cost
Performance
Flow
Liquidity
Allocations
Regulatory Structure
List Actions
Advanced Screening | FSRC »
Score Funds | FSCO »
Search Investors | IS »

Click here and set Group By to BFCS Category.

Set the criteria to ETF, Domestic Equity and Japan.

Income Large Cap has attracted inflows this year.

**Fig. 3** To analyze the factor tilts of the Next Funds Nikkei 225 ETF, go to **{1489 JP <Equity> TLTS <GO>}**.



1489 JP Equity

NEXT FUNDS Nikkei 225 High Dividend Yield Stock 50 Index Exchange Traded Fund

Exposure Type ● Active Exposure vs Benchmark TPX Index ○ Exposure vs Cap Weighted Market

Compare To 1478 JP Equity × 1698 JP Equity ×

Style Style Summary

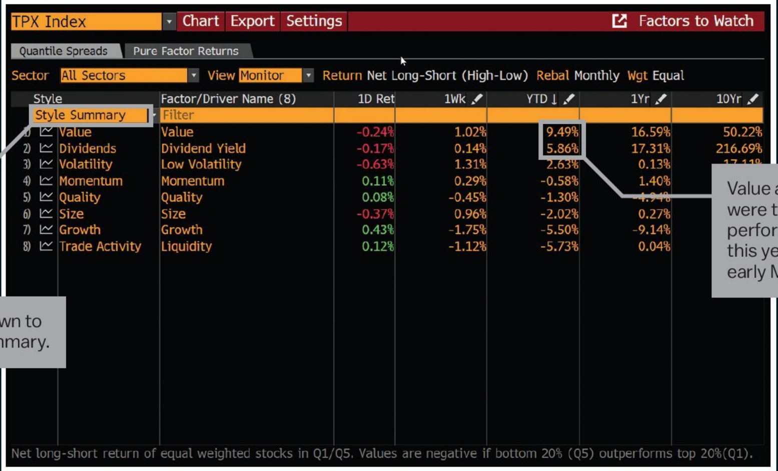
Settings
Tilts
View
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Active Exposures vs TP
1489 JP Equity
1478 JP Equity
1698 JP Equity
Size
Momentum
Quality
Value
Low Volatility
Liquidity
Growth
Dividend Yield
Style Summary

Click for methodology and factor definitions.

To compare other ETFs, enter them here.

The Next Funds Nikkei 225 ETF offers more active exposure to dividend yield than either of the other funds.

**Fig. 4** To see the performance of factors in the Japanese market, go to **{FTW <GO>}** and use the drop-down in the upper left to select TPX Index.



TPX Index

Sector All Sectors View Monitor Return Net Long-Short (High-Low) Rebal Monthly Wgt Equal

| | Style | Factor/Driver Name (8) | 1D Ret | 1Wk | YTD ↓ | 1Yr | 10Yr |
|---|---|---|---|---|---|---|---|
| | Style Summary | Filter | | | | | |
| 1) | Value | Value | -0.24% | 1.02% | 9.49% | 16.59% | 50.22% |
| 2) | Dividends | Dividend Yield | -0.17% | 0.14% | 5.86% | 17.31% | 216.69% |
| 3) | Volatility | Low Volatility | -0.63% | 1.31% | 2.63% | 0.13% | 17.11% |
| 4) | Momentum | Momentum | 0.11% | 0.29% | -0.58% | 1.40% | |
| 5) | Quality | Quality | 0.08% | -0.45% | -1.30% | -4.94% | |
| 6) | Size | Size | -0.37% | 0.96% | -2.02% | 0.27% | |
| 7) | Growth | Growth | 0.43% | -1.75% | -5.50% | -9.14% | |
| 8) | Trade Activity | Liquidity | 0.12% | -1.12% | -5.73% | 0.04% | |

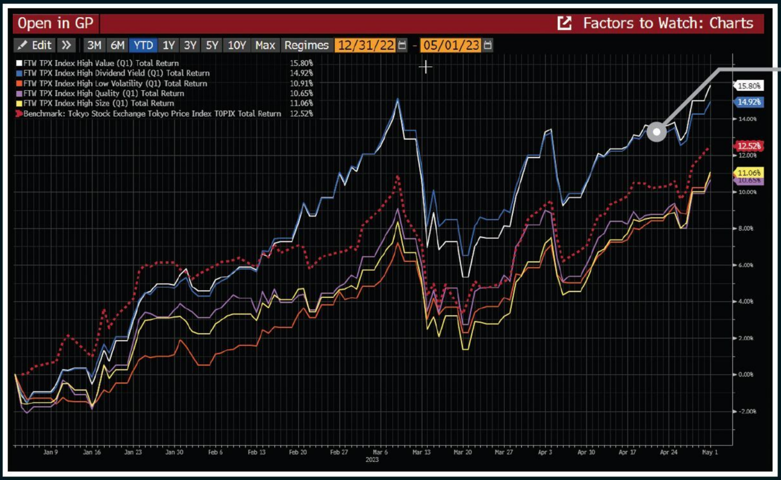
Chart
Export
Settings
Factors to Watch
Quantile Spreads
Pure Factor Returns

Net long-short return of equal weighted stocks in Q1/Q5. Values are negative if bottom 20% (Q5) outperforms top 20%(Q1).

Use the drop-down to select Style Summary.

Value and dividends were the top-performing factors this year through early May.

**Fig. 5** To chart the performance of the value factor, click the year-to-date figure in **{FTW <GO>}**.


Open in GP
Factors to Watch: Charts
Edit
3M
6M
YTD
1Y
3Y
5Y
10Y
Max
Regimes
12/31/22
05/01/23
FTW TPX Index High Value (Q1) Total Return 15.80%
FTW TPX Index High Dividend Yield (Q1) Total Return 14.92%
FTW TPX Index High Low Volatility (Q1) Total Return 10.91%
FTW TPX Index High Quality (Q1) Total Return 10.65%
FTW TPX Index High Size (Q1) Total Return 11.06%
Benchmark: Tokyo Stock Exchange Tokyo Price Index TOPIX Total Return 12.52%
15.80%
14.92%
14.00%
12.52%
12.00%
11.06%
10.65%
10.00%
8.00%
6.00%
4.00%
2.00%
0.00%
-2.00%
Jan 9
Jan 16
Jan 23
Jan 30
Feb 6
Feb 13
Feb 20
Feb 27
Mar 6
2023
Mar 13
Mar 20
Mar 27
Apr 3
Apr 10
Apr 17
Apr 24
May 1

Long-only value and dividends outperformed the Topix through early May.

To further dig into which strategies are attracting fund flows, use the Exchange Traded Funds tool. Type "ETF" in the command line and select the match from autocomplete. The shortcut is **{ETF <GO>}**. Click the Settings button on the red toolbar. Set Display Format to Name, then Group By to BFCS Category. Tick Sum below and hit Update.

Remove any criteria that shows in the amber field at the top of the screen by unchecking it in the Filters sidebar or by clicking the x in the amber field. Under Fund Type, tick the box for ETF to select it. Then under BFCS Asset Group, select Domestic Equity. In the amber field, type "Japan" and select the Japan Exchange match. Click the Flow tab. Collapse the categories by right-clicking on one of the small arrows and selecting Collapse All (**FIG. 2**).

The YTD column shows that investors have been allocating toward the Equity Income and Income Large Cap categories, while Equity Large Cap had outflows.

Click the Summary tab and the All Funds subtab and scroll down to the Income Large Cap section. The Next Funds Nikkei 225 High Dividend Yield ETF, the largest among these income strategies, had attracted the most year-to-date inflows as of early May.

**LET'S DIVE INTO** the factor exposures of this fund. Click the Next Funds Nikkei 225 ETF line. In the Related Functions window that appears, click on TLTS. The shortcut is **{1489 JP <Equity> TLTS <GO>}**. Tilts lets you quickly evaluate the characteristic exposures of a fund, stock or list. Here, the ETF offers high active exposure to dividend yield, value and momentum versus the Topix.

Next, let's compare the ETF with the two best-performing funds in the Large Cap Income category. In the Compare To field, type "iShares MSCI Japan High Dividend ETF" and click the 1478 JP Equity match. That will load the fund that led the category in performance, with an 11.6% return this year through early May. Then type "Listed Index Fund Japan High Dividend TSE Dividend Focus 100" and click the 1698 JP Equity match. The fund returned 11.3% over the period (**FIG. 3**).

The iShares fund, which is shown by a purple dot, has lower exposure to dividend yield and value than the Next Funds Nikkei 225 ETF. It scored higher in areas of size, quality and low volatility. Those characteristics, however, haven't fared as well as value and dividend yield in 2023.

**FINALLY, USE THE** Factors to Watch tool to see the performance of the factors in Tilts within the market.

Type "Factors to Watch" in the command line and select FTW. The shortcut is **{FTW <GO>}**. Use the drop-down in the upper left to select TPX Index under Asia Pacific. Set the amber box under Style to Style Summary. Click the YTD column to rank (**FIG. 4**). The value and dividends factors were the best and second-best long-short strategies in 2023 through early May.

For a chart, click the YTD figure for the performance of value. Click Long-Only next to Factors. Use the Add Another drop-down to the right of Style Summary to add Dividend Yield, Low Volatility, Quality and Size. Type "Topix" in the Benchmark amber box and select TPX Index. Set periodicity to YTD (**FIG. 5**).

From a long-only perspective, value (white) and dividend yield (yellow) have both outperformed the Topix (dotted red), while quality, low volatility and size have lagged the index. ●

---

Lynne is a product manager for companies/markets/analysis—top-down analytics and fund analysis at Bloomberg in New York.

Equities

# Create a Factor-Based Model Portfolio And Automate Its Rebalancing

By LUDOVICA FERRELI, ARPAN NAYAK and CONSTANTIN COSEREANU

**WHEN EVENTS CHANGE** the outlook for markets, how do you identify trends and adjust your strategy?

Consider an example: After China stepped back from its rigorous Covid Zero policy late last year, the country's economy started reopening. Given that development, what types of stocks present the best opportunities?

To begin to answer that question, explore which thematic factors are leading or lagging in a particular universe of stocks with the Factors to Watch function. Type "factors" in the command line of a terminal screen and click on the FTW match in autocomplete. The shortcut is **{FTW <GO>}**.

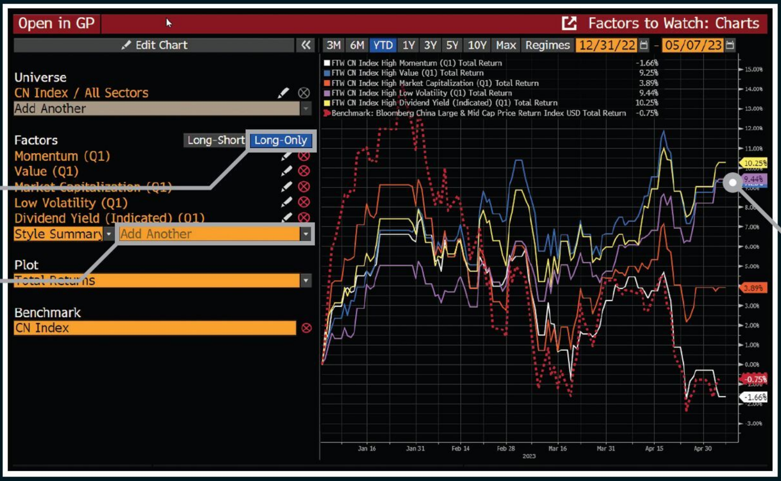
Load the Bloomberg China Large & Mid Cap Price Return Index by using the drop-down in the upper left to select CN Index under Asia Pacific. To graph the performance of factors, click the Chart button on the red toolbar. A year-to-date chart of long-only factors shows value and high-dividend yield outperforming the benchmark by more than 9 percentage points as of early May (**FIG. 1**).

**LET'S SAY YOU** wanted to build a model portfolio that invests in Chinese stocks that score high on defensive factors such as value. You can use the Equity Screening tool to create a list of candidates for such a strategy. Type "equity screening" in the command line of a terminal screen and click on the EQS match. The shortcut is **{EQS <GO>}**. EQS lets you drill down in a universe of stocks to the ones that match criteria you specify. In the amber field, type "Bloomberg China Large & Mid Cap Price Return Index USD" and click on the match. That trims the universe to the 565 stocks in the index as of April 25.

Using formulas, you can create custom factors for your screens. For a ready-made formula that scores stocks on a combination of three defensive characteristics, type "Defensive Multi-Factor Score" in the amber field in EQS and click on the match. To see the formula, click on the Edit button (**FIG. 2**).

What is this formula doing? The first expression—EXP1—pulls in each stock's dividend yield, if available. Then EXP4 takes those numbers for the stocks in the index and ranks them by percentile. EXP2 and EXP5 do something similar for a version of earnings yield. Earnings yield—the inverse of price-earnings ratio—shows a company's earnings as a percentage of each dollar invested in its stock. EXP3 and EXP6 likewise rank the stocks by annualized volatility, with the stocks with the biggest price swings at the bottom of the ranking. Finally, EXP8 scores the stocks based on an average of the three scores. Hit the Use in EQS button on the red toolbar. Use the drop-down to select > Greater than. Then type 90 in the field that appears and press <GO> to add the criteria. That winnows the list to 55 stocks as of late April (**FIG. 3**). Click on the Actions button on the red toolbar and select Save…. Give the screen a name such as "China Defensive" and hit Update. ►

**Fig. 1** For a chart of long-only factors in the Chinese market, run **{FTW <GO>}**, load the Bloomberg China Large & Mid Cap Price Return Index and click on the Chart button on the red toolbar.



Open in GP
Factors to Watch: Charts
Edit Chart
«
3M
6M
YTD
1Y
3Y
5Y
10Y
Max
Regimes
12/31/22
05/07/23
Long-Short
Long-Only
Add Another
Style Summary
Add Another
FTW CN Index High Momentum (Q1) Total Return -1.66%
FTW CN Index High Value (Q1) Total Return 9.25%
FTW CN Index High Market Capitalization (Q1) Total Return 3.89%
FTW CN Index High Low Volatility (Q1) Total Return 9.44%
FTW CN Index High Dividend Yield (Indicated) (Q1) Total Return 10.25%
Benchmark: Bloomberg China Large & Mid Cap Price Return Index USD Total Return -0.75%
15.00%
14.00%
13.00%
12.00%
11.00%
10.25%
9.44%
8.00%
7.00%
6.00%
5.00%
3.89%
3.00%
2.00%
1.00%
0.00%
-0.75%
-1.66%
-3.00%
Jan 16
Jan 31
Feb 14
Feb 28
Mar 16
Mar 31
Apr 15
Apr 30
2023

Universe
CN Index / All Sectors

Factors
Momentum (Q1)
Value (Q1)
~~Market Capitalization (Q1)~~
Low Volatility (Q1)
Dividend Yield (Indicated) (Q1)

Plot
Total Returns

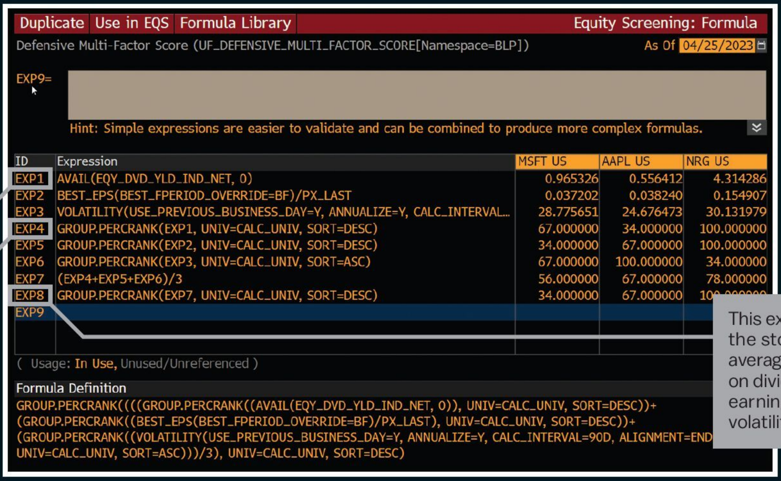
Benchmark
CN Index

Click here for long-only factors.

Use this drop-down to add factors such as value and dividend yield to the chart.

Value outperformed the index by 10 percentage points this year through early May.

**Fig. 2** In **{EQS <GO>}**, click on the ready-made Defensive Multi-Factor Score to display the formula.



Duplicate
Use in EQS
Formula Library
Equity Screening: Formula
As Of 04/25/2023

Defensive Multi-Factor Score (UF_DEFENSIVE_MULTI_FACTOR_SCORE[Namespace=BLP])

EXP9=

Hint: Simple expressions are easier to validate and can be combined to produce more complex formulas.

| ID | Expression | MSFT US | AAPL US | NRG US |
|---|---|---|---|---|
| EXP1 | AVAIL(EQY_DVD_YLD_IND_NET, 0) | 0.965326 | 0.556412 | 4.314286 |
| EXP2 | BEST_EPS(BEST_FPERIOD_OVERRIDE=BF)/PX_LAST | 0.037202 | 0.038240 | 0.154907 |
| EXP3 | VOLATILITY(USE_PREVIOUS_BUSINESS_DAY=Y, ANNUALIZE=Y, CALC_INTERVAL... | 28.775651 | 24.676473 | 30.131979 |
| EXP4 | GROUP.PERCRANK(EXP1, UNIV=CALC_UNIV, SORT=DESC) | 67.000000 | 34.000000 | 100.000000 |
| EXP5 | GROUP.PERCRANK(EXP2, UNIV=CALC_UNIV, SORT=DESC) | 34.000000 | 67.000000 | 100.000000 |
| EXP6 | GROUP.PERCRANK(EXP3, UNIV=CALC_UNIV, SORT=ASC) | 67.000000 | 100.000000 | 34.000000 |
| EXP7 | (EXP4+EXP5+EXP6)/3 | 56.000000 | 67.000000 | 78.000000 |
| EXP8 | GROUP.PERCRANK(EXP7, UNIV=CALC_UNIV, SORT=DESC) | 34.000000 | 67.000000 | 10 |
| EXP9 |  |  |  |  |

( Usage: In Use, Unused/Unreferenced )

Formula Definition

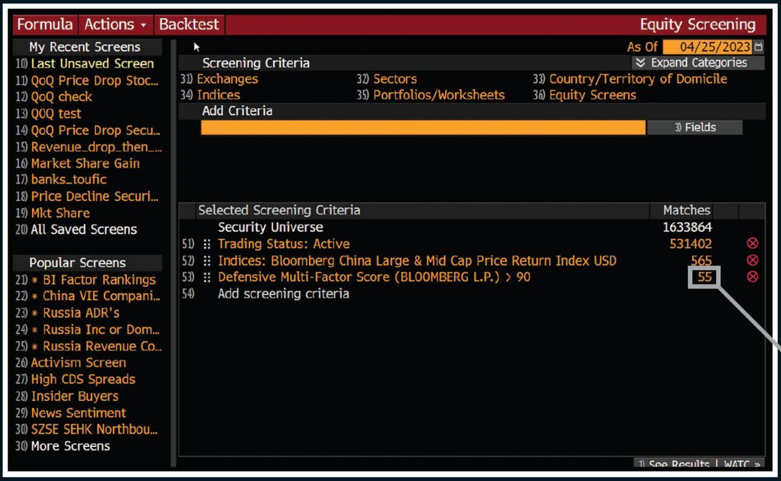
```
GROUP.PERCRANK((((GROUP.PERCRANK((AVAIL(EQY_DVD_YLD_IND_NET, 0)), UNIV=CALC_UNIV, SORT=DESC))+
(GROUP.PERCRANK((BEST_EPS(BEST_FPERIOD_OVERRIDE=BF)/PX_LAST), UNIV=CALC_UNIV, SORT=DESC))+
(GROUP.PERCRANK((VOLATILITY(USE_PREVIOUS_BUSINESS_DAY=Y, ANNUALIZE=Y, CALC_INTERVAL=90D, ALIGNMENT=END
UNIV=CALC_UNIV, SORT=ASC)))/3), UNIV=CALC_UNIV, SORT=DESC)
```

This expression pulls in the dividend yield, if available.

This expression ranks each stock in the universe by dividend yield.

This expression ranks the stocks on an average of their scores on dividend yield, earnings yield and volatility.

**Fig. 3** Use EQS to screen for China stocks in the top decile on the defensive factors.



Formula
Actions
Backtest
Equity Screening
As Of 04/25/2023
Screening Criteria
Expand Categories
31) Exchanges
32) Sectors
33) Country/Territory of Domicile
34) Indices
35) Portfolios/Worksheets
36) Equity Screens
Add Criteria
3) Fields
1) See Results | WATC »

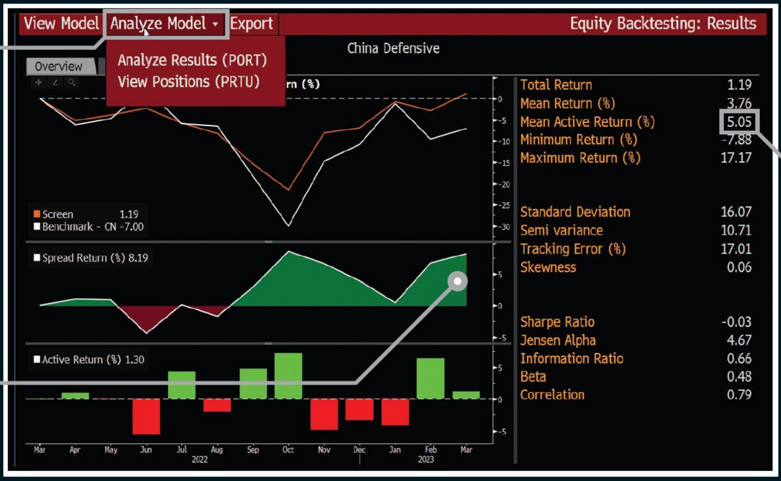
My Recent Screens
10) Last Unsaved Screen
11) QoQ Price Drop Stoc...
12) QoQ check
13) QOQ test
14) QoQ Price Drop Secu...
15) Revenue_drop_then_...
16) Market Share Gain
17) banks_toufic
18) Price Decline Securi...
19) Mkt Share
20) All Saved Screens

Popular Screens
21) * BI Factor Rankings
22) * China VIE Compani...
23) * Russia ADR's
24) * Russia Inc or Dom...
25) * Russia Revenue Co...
26) Activism Screen
27) High CDS Spreads
28) Insider Buyers
29) News Sentiment
30) SZSE SEHK Northbou...
30) More Screens

| Selected Screening Criteria | Matches |
|---|---|
| Security Universe | 1633864 |
| 51) Trading Status: Active | 531402 |
| 52) Indices: Bloomberg China Large & Mid Cap Price Return Index USD | 565 |
| 53) Defensive Multi-Factor Score (BLOOMBERG L.P.) > 90 | 55 |
| 54) Add screening criteria |  |

Focusing on stocks that score above the 90th percentile winnows the list to 55 stocks.

**Fig. 4** Go to **{EQBT <GO>}** to run a backtest on your strategy.


View Model
Analyze Model
Export
Equity Backtesting: Results
China Defensive
Overview
Analyze Results (PORT)
View Positions (PRTU)
rn (%)
Screen 1.19
Benchmark - CN -7.00
Spread Return (%) 8.19
Active Return (%) 1.30
0
-5
-10
-15
-20
-25
-30
5
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan
Feb
Mar
2022
2023

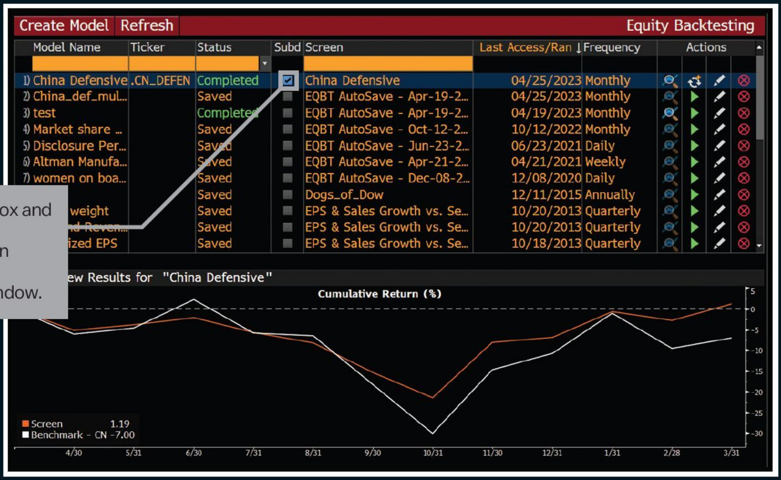
| | |
|---|---|
| Total Return | 1.19 |
| Mean Return (%) | 3.76 |
| Mean Active Return (%) | 5.05 |
| Minimum Return (%) | -7.88 |
| Maximum Return (%) | 17.17 |
| Standard Deviation | 16.07 |
| Semi variance | 10.71 |
| Tracking Error (%) | 17.01 |
| Skewness | 0.06 |
| Sharpe Ratio | -0.03 |
| Jensen Alpha | 4.67 |
| Information Ratio | 0.66 |
| Beta | 0.48 |
| Correlation | 0.79 |

To tickerize your strategy so you can track it across a range of Bloomberg analytics, click here and select View Positions (PRTU).

The strategy outperformed the index by more than 8 percentage points.

Mean active return was 5%.

**Fig. 5** To schedule automatic rebalances of your strategy, run **{EQBT <GO>}** again.


Create Model
Refresh
Equity Backtesting
Actions
ew Results for "China Defensive"
Cumulative Return (%)
Screen 1.19
Benchmark - CN -7.00
5
0
-5
-10
-15
-20
-25
-30
4/30
5/31
6/30
7/31
8/31
9/30
10/31
11/30
12/31
1/31
2/28
3/31

| | Model Name | Ticker | Status | Subd | Screen | Last Access/Ran ↓ | Frequency |
|---|---|---|---|---|---|---|---|
| 1) | China Defensive | .CN_DEFEN | Completed | ☑ | China Defensive | 04/25/2023 | Monthly |
| 2) | China_def_mul... | | Saved | ☐ | EQBT AutoSave - Apr-19-2... | 04/25/2023 | Monthly |
| 3) | test | | Completed | ☐ | EQBT AutoSave - Apr-19-2... | 04/19/2023 | Monthly |
| 4) | Market share ... | | Saved | ☐ | EQBT AutoSave - Oct-12-2... | 10/12/2022 | Monthly |
| 5) | Disclosure Per... | | Saved | ☐ | EQBT AutoSave - Jun-23-2... | 06/23/2021 | Daily |
| 6) | Altman Manufa... | | Saved | ☐ | EQBT AutoSave - Apr-21-2... | 04/21/2021 | Weekly |
| 7) | women on boa... | | Saved | ☐ | EQBT AutoSave - Dec-08-2... | 12/08/2020 | Daily |
| | | | Saved | ☐ | Dogs_of_Dow | 12/11/2015 | Annually |
| | weight | | Saved | ☐ | EPS & Sales Growth vs. Se... | 10/20/2013 | Quarterly |
| | d Reven... | | Saved | ☐ | EPS & Sales Growth vs. Se... | 10/20/2013 | Quarterly |
| | ized EPS | | Saved | ☐ | EPS & Sales Growth vs. Se... | 10/18/2013 | Quarterly |

Tick the check box and hit the Run and Subscribe button in the Confirm Subscription window.

**GREAT, NOW YOU** have a screen that identifies stocks in the China index that score in the top decile using a defensive approach. How would a strategy of investing into those stocks have performed? Click on the Backtest button to find out. That will load your screen into the Equity Backtesting (EQBT) function, which lets you create a model to test your strategy over a specified period and rebalancing frequency.

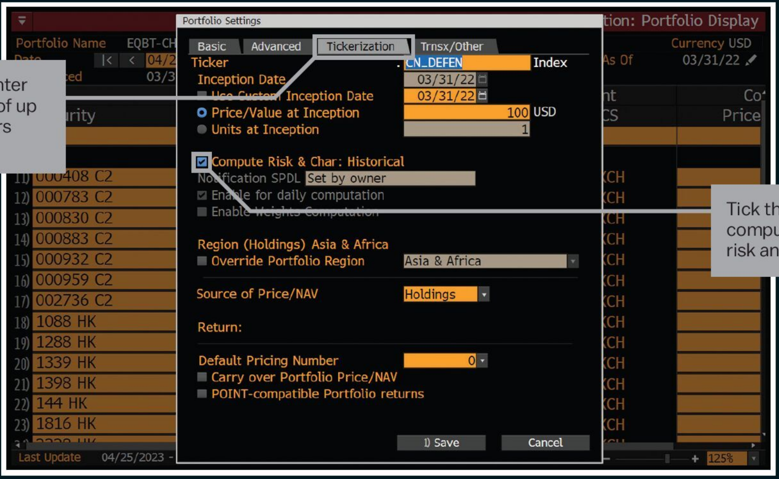
Click on Analysis Period. The Analysis Periods inputs give you a lot of flexibility in selecting start and end dates and rebalancing frequencies. Daily rebalancing is supported over a range of one year; weekly is supported over five years. Data begin at the end of 1992. Note: To automate backtesting, you need to select a Relative End Date.

To set your weighting scheme and benchmark, click on Analytic Parameters. When you're ready, hit the Run Model button. To save your model, enter a name and hit Save. When your backtest has run, you'll receive a message. Click on the attachment to see the results or run **{EQBT <GO>}** and click on the magnifying glass icon for your strategy (**FIG. 4**).

The strategy outperformed the benchmark by 8.2% through late April. Mean active return was 5%. For turnover, click on the Counts tab. To see the securities for different rebalance periods, click on the Security Analysis tab. To analyze your results further, click on the Analyze Model button and select Analyze Results (PORT).

**HERE'S THE CRUX** of it: To schedule automatic rebalances of your strategy, run **{EQBT <GO>}** again and tick the box in the Subd column (**FIG. 5**). In the Confirm Subscription window, hit the Run and Subscribe button. It's that simple. Note that membership from previous rebalances won't be altered during future ones. To

**Fig. 6** When you open your strategy in **{PRTU <GO>}**, click on the Settings button and select Portfolio.



Click here and enter a custom ticker of up to nine characters and digits.

Tick the box here to compute historical risk and fundamentals.

Portfolio Settings

Basic | Advanced | Tickerization | Trnsx/Other

Ticker . CN_DEFEN Index
Inception Date 03/31/22
☐ Use Custom Inception Date 03/31/22
● Price/Value at Inception 100 USD
○ Units at Inception 1

☑ Compute Risk & Char: Historical
Notification SPDL Set by owner
☑ Enable for daily computation
☐ Enable Weights Computation

Region (Holdings) Asia & Africa
☐ Override Portfolio Region Asia & Africa

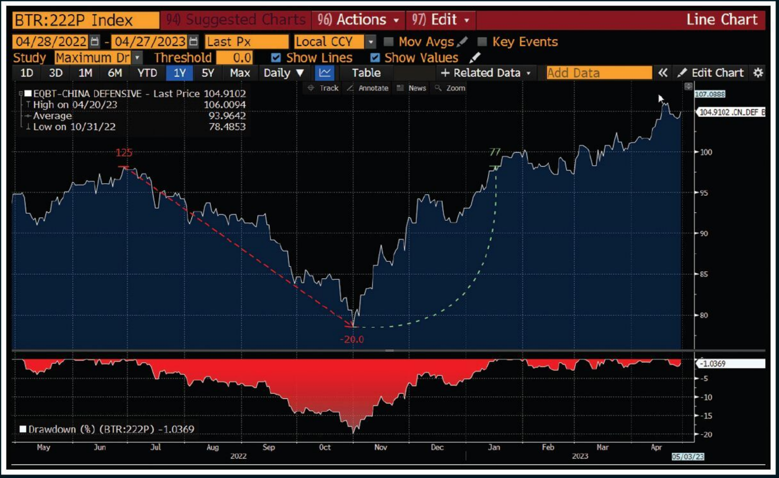
Source of Price/NAV Holdings

Return:

Default Pricing Number 0
☐ Carry over Portfolio Price/NAV
☐ POINT-compatible Portfolio returns

1) Save | Cancel

**Fig. 7** Once you've tickerized your portfolio, you can load it and run functions such as **{GP MAXDD <GO>}** to chart the maximum drawdown over a selected period.



BTR:222P Index

04/28/2022 - 04/27/2023 Last Px Local CCY ☐ Mov Avgs ☐ Key Events

Study Maximum Dr Threshold 0.0 ☑ Show Lines ☑ Show Values

EQBT-CHINA DEFENSIVE - Last Price 104.9102
High on 04/20/23 106.0094
Average 93.9642
Low on 10/31/22 78.4853

Drawdown (%) (BTR:222P) -1.0369

create consistency, backtests can't be edited while in subscription mode. You can subscribe to up to 20 backtests.

**ONE ADDITIONAL** thing: To track your strategy across a range of Bloomberg analytics, you can tickerize it. In essence, tickerization converts your portfolio into an index with all trades and rebalances accounted for.

Go to **{EQBT <GO>}** again and click on the magnifying glass icon for your strategy. Then click the Analyze Model button and select View Positions (PRTU).

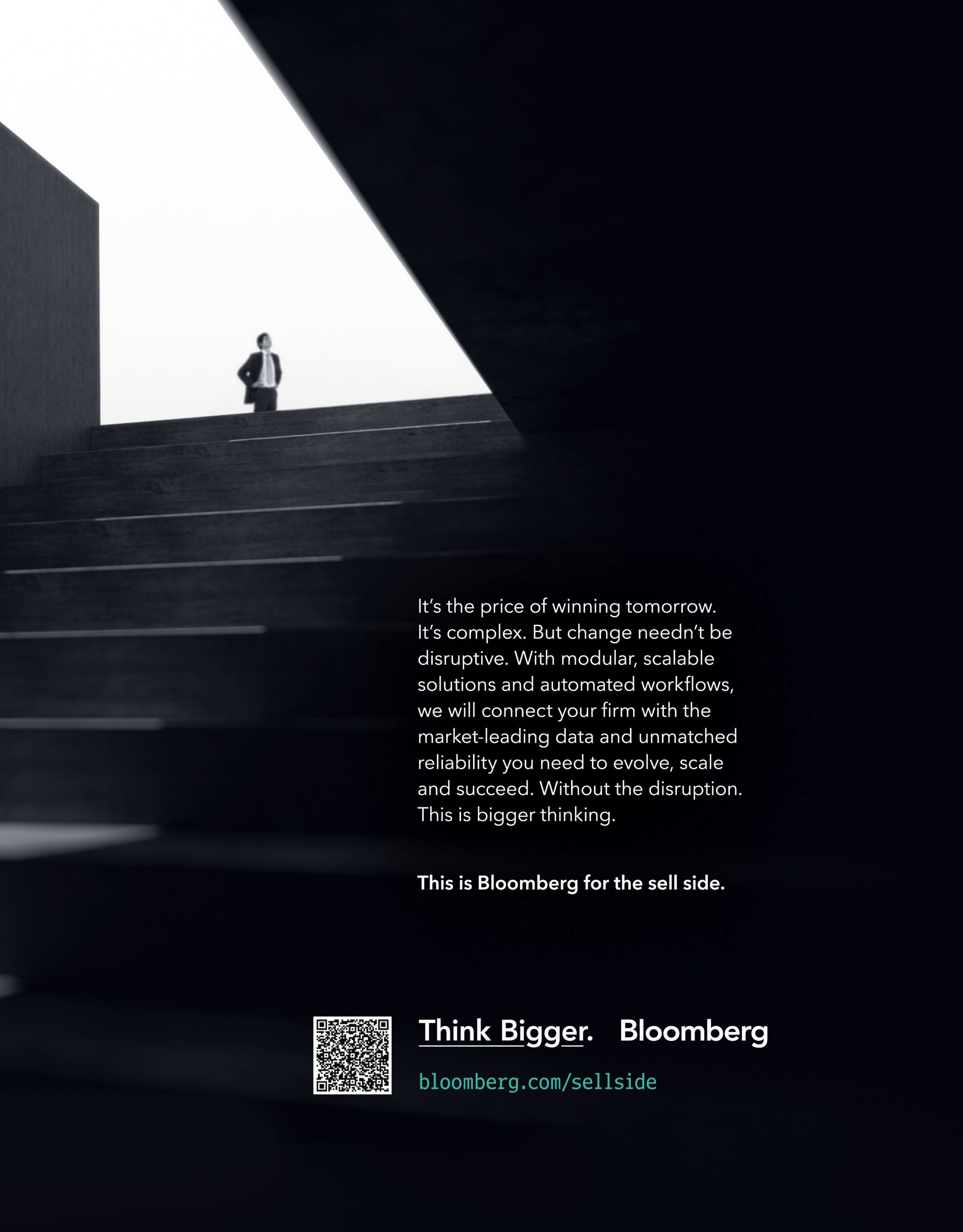
That will load the stocks from the strategy in PRTU. Click on the Settings button and select Portfolio. In the Portfolio Settings window that appears, click the Tickerization tab. Enter a custom ticker, which can be up to nine characters and digits with no spaces, in the Ticker field and press <GO>. Tick the box to select Compute Historical Risk and Fundamentals data (**FIG. 6**). Hit Save. It takes 24 hours for the "index" to be backfilled with all history and analytics, and as EQBT will maintain your strategy going forward, subsequent rebalances will be appended to the same ticker. If you're not enabled for tickerization, please contact the Help Desk by pressing <Help> twice.

Once you've done that, you'll be able to load the ticker and run functions such as **{DES <GO>}**, **{GP MAXDD <GO>}**, **{COMP <GO>}**, **{HRH <GO>}** and more (**FIG. 7**). You can load your strategy in a worksheet by running **{W <GO>}**. ●

---

Ferreli is an equity/quantamental market specialist at Bloomberg in London. Nayak is a product manager for companies/markets/analysis—quantitative equity, and Cosereanu is an equity, idea generation and portfolio market specialist, in New York.

# Change
# change.



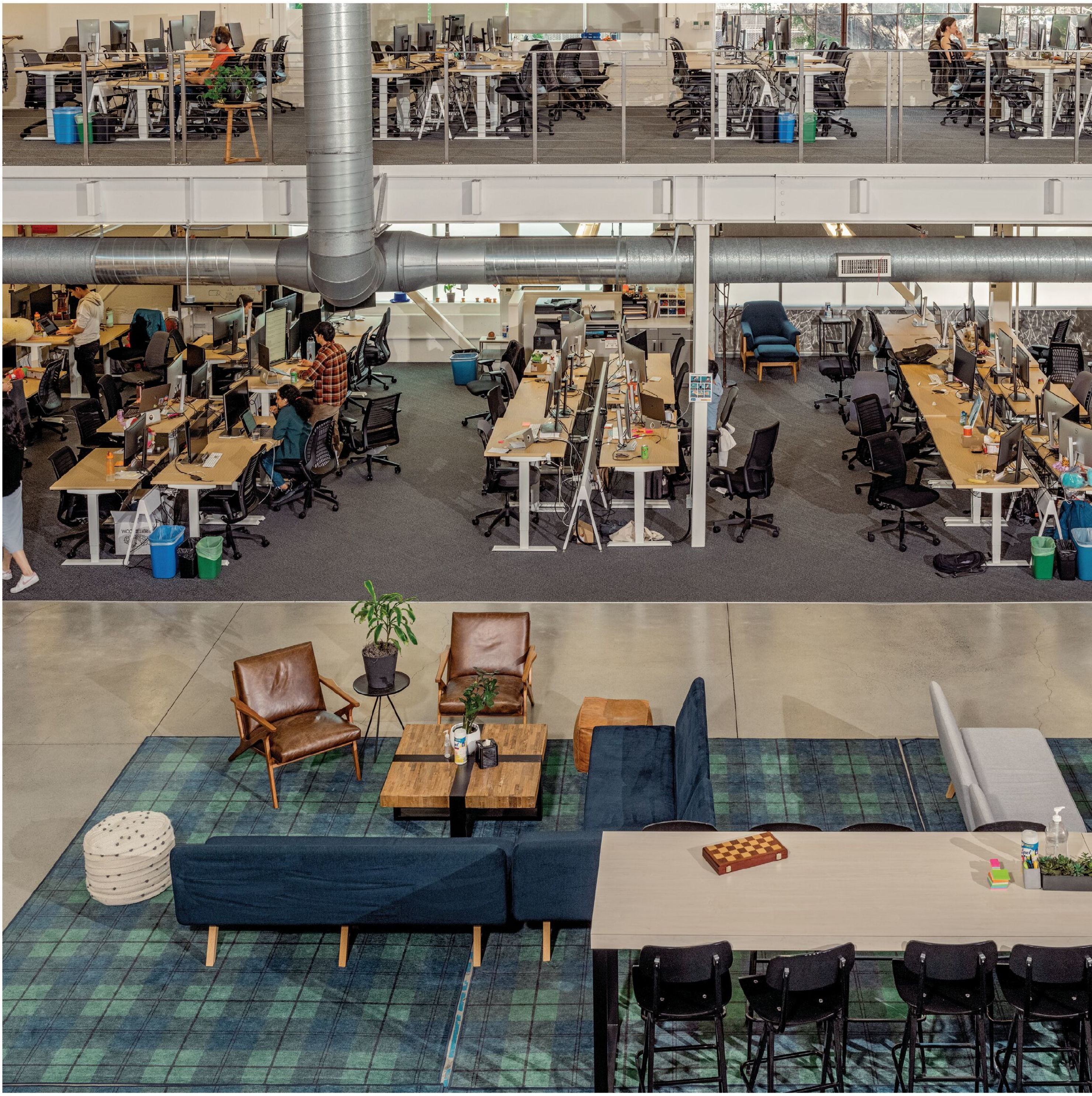
It's the price of winning tomorrow. It's complex. But change needn't be disruptive. With modular, scalable solutions and automated workflows, we will connect your firm with the market-leading data and unmatched reliability you need to evolve, scale and succeed. Without the disruption. This is bigger thinking.

**This is Bloomberg for the sell side.**

**Think Bigger. Bloomberg**

bloomberg.com/sellside

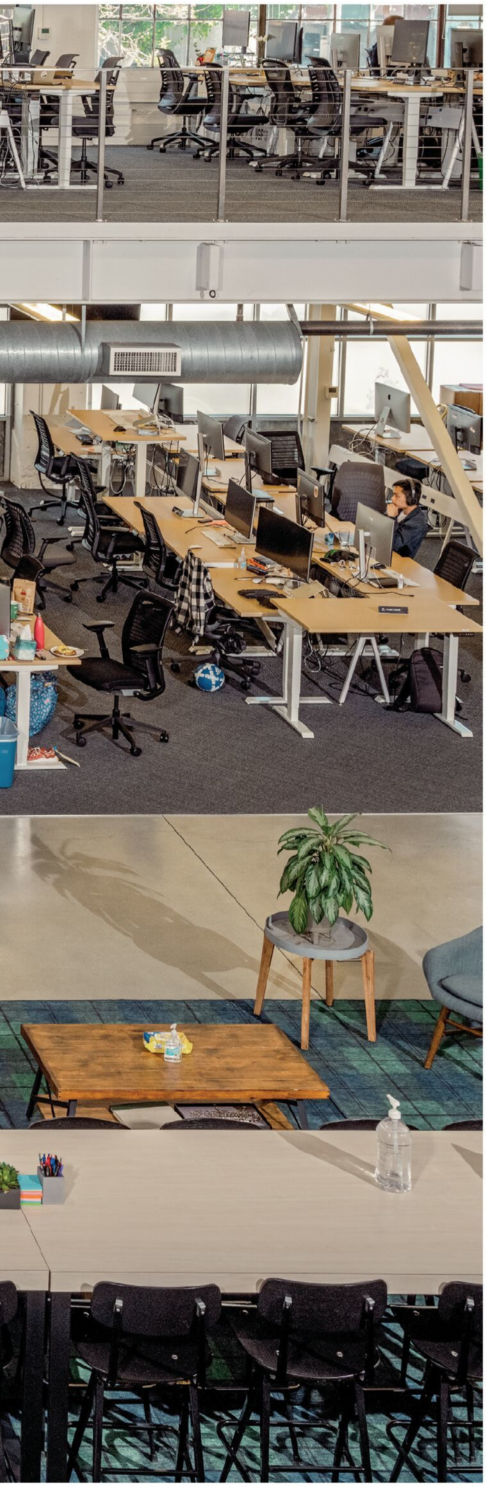
Bloomberg Markets



PHOTOGRAPH BY KELSEY McCLELLAN

VOLUME 32 ISSUE 3 JUNE / JULY 2023

Inside Plaid's San Francisco office



The Challenging Path Ahead for UBS and Its CEO-in-Waiting p **60**

Fintech's Plumbers p **64**

A Warehouse Windfall p **70**

# The Future of Finance

By MYRIAM BALEZOU

# The Challenging Path Ahead for UBS and Its CEO-in-Waiting

Iqbal Khan was once the heir apparent, but the Credit Suisse deal has thrown everything into flux

ILLUSTRATION
BY CHRISTIAN BLAZA

**WHEN IQBAL KHAN** joined UBS from rival Credit Suisse in 2019, the crosstown move sparked a tabloid scandal over a cloak-and-dagger surveillance operation on the star banker. But in this year's forced marriage of Switzerland's two biggest lenders, he's been conspicuously low-key. Seen by many insiders as a future UBS Group AG chief executive officer, Khan retained his pivotal role as head of global wealth management. But after a management reshuffle aimed at helping the combined entity meld its sprawling operations, other potential contenders emerged to succeed CEO Sergio Ermotti, who returned to UBS to lead the integration.

Khan's expertise is critical to the merger's eventual success, but the 47-year-old's path to the top has also become more complicated—in many ways mirroring the pitfalls facing the historic combination. He'll have to contend with old colleagues at Credit Suisse Group AG and fold those he wants to keep into UBS's vast roster of private bankers. And he'll have to dissuade wealthy clients from jumping to rivals bent on using the disruption to pick up customers and poach talent. This year, Credit Suisse lost a string of private bankers, including chiefs in central Europe, China and Indonesia.

Chairman Colm Kelleher has said that integration will take as many as four years. That's an indication of how long it might be before the CEO job is available.

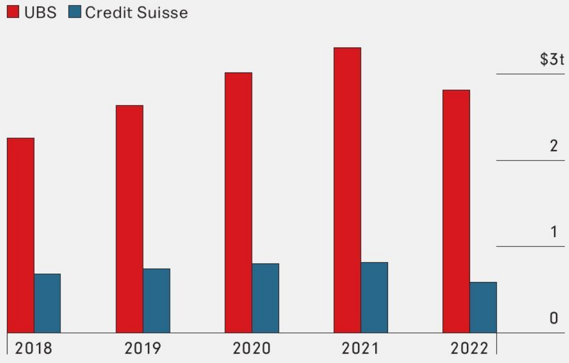
UBS declined to comment for this story and didn't make Khan—who's done little public speaking since joining the bank—available for questions.

"Iqbal Khan has a big task ahead with the integration," says Andreas Venditti, who leads research on banks for Vontobel Holding AG. "That said, he is in a good position. He knows both banks and both wealth management businesses inside out."

**IT'S HARD TO** overestimate the importance of wealth and asset management for the new UBS. The addition of Credit Suisse boosts assets under management from $3.9 trillion to roughly $5 trillion, about six times the size of Switzerland's economy.

**An Unequal Swiss Marriage**

Value of client assets



*Credit Suisse's client assets were converted from Swiss francs using the exchange rate at each yearend.*
**Sources**: Company filings and annual reports

After the merger it will become the world's second-largest wealth manager, behind Morgan Stanley.

Before the deal, UBS had 74,000 employees overseeing the finances of old-money heirs, upstart entrepreneurs and large institutions. If all of Credit Suisse's staff is absorbed—an unlikely prospect given the sizable overlap as well as cuts that were already underway at the bank—UBS's total head count would jump to 120,000. Analysts forecast the combined wealth management group could generate $7 billion in pretax profit by 2027. UBS's wealth management division reported almost $5 billion in pretax profit last year, while Credit Suisse's unit posted a loss of about $700 million.

Being big is critical in lots of areas of banking, but relationships and personal appeal matter more when advising the global elite about their money. People who've worked with Khan say he's got the skills to handle the task, even if his rocky exit from Credit Suisse ruffled feathers. "People think about wealth management as sort of a finance business," Khan said at a conference hosted by Goldman Sachs Group Inc. in June 2020—less than a year after he joined UBS. "But if you think about it, it is a people business, it's an emotional business."

**DESPITE HIS ABRUPT** departure from Credit Suisse over thwarted ambition and bruised egos, Khan has demonstrated tenacity and resilience in the past, which could help him navigate the integration.

As a child he migrated to Switzerland from Pakistan with his parents, fleeing political turmoil in the region, and grew up in Dübendorf, a working-class neighborhood of Zurich. He went through an apprentice program before studying at the University of Zurich. For 12 years he rose up the ranks at accounting firm EY before joining Credit Suisse in 2013 as the wealth management group's chief financial officer.

At UBS he built a strong network of allies, and though he still has solid connections at Credit Suisse, not everyone is pleased at the prospect of working for him again, according to insiders who didn't want to speak publicly about their incoming boss. To smooth things over in the aftermath of the deal, Khan traveled to Credit Suisse branches from Dubai to Hong Kong, offering retention packages to keep the best private bankers on board, according to people familiar with the matter who asked not to be identified because they weren't authorized to disclose the information.

UBS also sent a so-called clean team of about 100 people to assess client rosters and personnel and review business lines. Activities that don't meet the criteria for risk and earnings that UBS has put in place would be banished to a portfolio of noncore and legacy assets. The unit exists to separate the good from the bad, unwinding complex trades and loans and cutting staff that are no longer needed.

The Zurich-based bank can afford to be selective. It picked up Credit Suisse for only $3 billion in the agreement brokered by the Swiss government to avoid a messy collapse. Losses significant enough to trigger a state backstop are "exceptionally unlikely," Ermotti said in May at a media forum in the Swiss city of Lucerne. On May 17, UBS estimated it will reap a $34.8 billion gain from the takeover, though it also expects about $13 billion of markdowns on Credit Suisse assets and legal liabilities that may cost as much as $4 billion over 12 months.

**SINCE JOINING UBS**, Khan has been subtly positioned for a bigger role. Last September he represented the bank at a CEO conference organized by Bank of America Corp., one of only two official events he's attended since his high-profile departure from Credit Suisse. At the conference he underscored his preference for personalized banking over the technology-focused approach pushed by Ralph Hamers, the UBS CEO swapped out for Ermotti.

"Everything we do starts with clients," Khan said at the event. "I mean our business is centered around the client. And I don't say this just as lip service."

UBS aims to use the deal to expand in Southeast Asia, Brazil and the Middle East—a stronghold in which Credit Suisse has the relevant banking licenses.

Still, risks abound. Credit Suisse was hemorrhaging clients in its final months as investors lost confidence in the scandal-prone bank. Assets under management slumped to 1.3 trillion Swiss francs ($1.4 trillion) at the end of 2022, from 1.6 trillion francs a year earlier. In the first quarter its customers withdrew $68 billion, continuing its wave of outflows.

People with tens of millions of dollars have a lot of choices. If they were banking with Credit Suisse before the meltdown, they likely had a reason for not going with UBS. And in the rush to secure their assets, most jumped to rivals. UBS's wealth management arm added $28 billion of net new money in the first quarter, with $7 billion coming in the days after the announcement of the Credit Suisse takeover. Credit Suisse's collapse damaged Switzerland's reputation as a haven, compounding Khan's challenges.

JPMorgan Chase, Citigroup, Deutsche Bank and other competitors are already circling, seeking to recruit clients as well as private and investment bankers. Some rivals have eased hiring freezes to take advantage of the situation.

**ALTHOUGH FEW IN UBS** are better placed than Khan to quickly sort through Credit Suisse's operations, he also played an unintentional role in one of the bank's most sensational scandals. In January 2019 a long-festering feud between Khan and Credit Suisse's then-CEO, Tidjane Thiam, broke into the open at a dinner party in a wealthy suburb on Lake Zurich. The spat ultimately led to Khan's resigning in July of that year after being passed over for promotion. He was subsequently recruited by Ermotti, who stepped down as CEO in 2020 before being brought back in April to replace Hamers.

At the time, the top ranks at Credit Suisse were so concerned Khan might poach key personnel, a private security firm was hired to monitor his activities. The executive discovered the surveillance, unleashing a scandal that severely damaged the bank's reputation. Khan and Credit Suisse reached a settlement in 2021 that ended pending criminal proceedings. The terms of the settlement weren't disclosed, and Khan has declined to comment on the matter. It later emerged that Khan wasn't the only executive spied on by Credit Suisse.

**"Iqbal Khan has a big task ahead with the integration"**

●

Since joining UBS, he's quietly fine-tuned its wealth management business, spearheading a push to lend money to clients to expand their investment portfolios. The initiative led to more than $25 billion a year in new loans—along with additional trading and investment fees—surpassing a target Khan set out when he first came aboard.

In 2021 he was given the regional leadership role for Europe, the Middle East and Africa, and last summer he was elevated to sole global head of wealth management. His advancement put him in prime position to succeed Hamers as CEO until the deal shook things up.

Khan's track record and wide-ranging responsibility may help him get the top job, but other executives were trusted with roles that could position them to shine. Michelle Bereaux, a 23-year UBS veteran, was appointed group integration officer. Beatriz Martin Jimenez, UBS's group treasurer and head of its UK division, was named to lead the group overseeing parts of the business that are being wound down. She also took charge of UBS's operations in Europe, the Middle East and Africa, narrowing Khan's responsibility to integrating the two wealth management businesses. Todd Tuckner, the finance chief of Khan's wealth management division, is moving up to become the group's chief financial officer.

Although likely a long shot, outgoing Credit Suisse CEO Ulrich Körner—who previously worked for UBS—also made the cut and was appointed as a member of the executive board, responsible for Credit Suisse's operational continuity and client focus.

That leaves Khan to deal with a more complex field of rivals at a financial institution that will be in flux for years. But for a dyed-in-the-wool Swiss private banker, there may be no better place to be, as he explained at the 2020 Goldman Sachs conference.

"I worked as a competitor to UBS, admired UBS, but getting the opportunity to look under the hood at the largest global wealth manager is absolutely fascinating." ●

---

Balezou is a finance reporter for Bloomberg News in Zurich.

# Fintech's

Over the past decade, Plaid's digital pipes have enabled 1 in every 3 people with a US bank account to connect it to the app or service of their choosing.

By JENNY SURANE

PHOTOGRAPHS BY KELSEY McCLELLAN

# Plumbers

What's next for Zach Perret's $13.4 billion company?

Zap $50 to a friend via Venmo. Trade Bitcoin on Robinhood. Get a student loan with SoFi. Do any of those things, or many more that involve money nowadays, and odds are you're doing business with Zach Perret.

Perret, 35, is the wunderkind behind Plaid Inc., the plumbing for more than 8,000 of today's most popular financial apps. Never heard of it? Rest assured, your bank has. Plaid barely existed a decade ago. Today it's woven itself into the very fabric of economic life.

Perret has deftly—and at times controversially—positioned Plaid in the sweet spot between traditional banks and all those apps and third-party financial services vying for control over consumers' wallets. His San Francisco-based company provides the pipes that connect fintechs to bank accounts, allowing consumers to seamlessly send payments, budget finances and so on. In return, Plaid collects a few pennies every time they do.

The company is so good at what it does that giant Visa Inc. offered to buy it three years ago for $5.3 billion. Antitrust worries derailed the deal, but no matter. Now privately held Plaid is valued at more than $13 billion. At some point, as the company pushes into new businesses such as payments and antifraud tools, a stock market listing might beckon.

Perret has moved fast and, in Silicon Valley tradition, broken a few things in the process. Plaid says it wants to give people quick and easy access to all the data that banks collect about them. But for years it employed what banks viewed as a sneaky strategy to hoover up that info. Whenever consumers signed up for a fintech, they'd be greeted by a Plaid-designed login screen that—until 2018—impersonated the customer's own bank, right down to the colors and logos. Customers would then type in their bank usernames and passwords, giving Plaid permission to access their bank data to share with the fintechs. The technique is called "screen scraping," and banks hate it.

The ruse made Plaid a persona non grata in banking. Executives such as Jamie Dimon of JPMorgan Chase & Co. were apoplectic. Eventually, Plaid's tactics prompted consumers to take legal action, alleging the company infringed privacy rights by taking more data than it needed. In July 2022, Plaid entered into a $58 million settlement that included limiting the data it scrapes, but it continues to deny the allegations.

"The claims raised in the lawsuit do not reflect our practices," according to an emailed statement provided by a company spokesperson. "We make our role and practices clear and provide services that give consumers control over how and where they share their data."

A year on, Perret is trying to show the world that Plaid can thrive without screen scraping, which now accounts for only 25% of the traffic on his company's network. He's brokered an uneasy peace with many big banks, which have warmed, if warily, to the idea of working with him. Some—including Citigroup Inc. and American Express Co.—have even invested in Perret's business.

Plaid today has helped 1 in 3 US bank account holders connect to an outside app. It's reached data-sharing agreements with 45 financial institutions, JPMorgan, Capital One Financial and Wells Fargo among them. Those accords pave the way for Plaid to gain access to consumers' bank data in a more secure way. But it still hasn't reached an agreement with some banks, including PNC Financial Services Group Inc.

So Perret must still try to cajole those holdouts and legions of other banks to sign data-sharing agreements. Right now the timing isn't great. Venture capital funding for the fintech industry has largely dried up, after exploding when the pandemic shifted everything online. Stripe Inc., PayPal Holdings Inc. and others have been forced to cut jobs as they brace for a prolonged slowdown. Plaid has also pulled back: In November the company shed 260 employees, about 20% of its workforce at the time.

Perret is unbowed. He insists the move toward everything-everywhere-all-at-once open banking is unstoppable. "You can't put toothpaste back in the tube," he says.

**PERRET HARDLY COMES** across like a guy who wants to make old-school banks look like Blockbuster Video. With an easy smile, flowing, sandy-blond hair and Silicon Valley-chic black T-shirts and jeans, he throws off a laid-back vibe. A keen rock climber, he installed a vertical treadmill in Plaid's first office.

His voice gives no hint of his roots in a flyspeck suburb of Winston-Salem, North Carolina. His mother worked as a fundraiser for a private school and sang in a barbershop quartet. His father was the director of a local symphony orchestra.

College was 90 miles east, at Duke University, where Perret graduated in 2010 with degrees in chemistry and biology. During a brief stint as a consultant at Bain & Co. in Atlanta, Perret met his future business partner, William Hockey. (Hockey left Plaid in 2019 but remains on its board.)

Post-Bain, the two initially tried to start a personal budgeting app. It failed but led to an "aha!" moment: The connections their company was building to access customers' banking data might be more valuable than they'd realized. Those gateways could be leveraged for all sorts of financial apps.

And so, in 2013 in New York City, Plaid was born. Early on, the challenge was clear: Find enough fintechs that wanted a doorway into banks. Perret and Hockey's solution was to have software developers build fake apps as demos, so they could pitch banks on the potential value of their new network.

It was slow going at first. US banks weren't exactly early adopters of open banking, the idea that customers should have control of their own financial data. For many executives, application programming interfaces, or APIs, the now ubiquitous ways that multiple programs communicate, seemed like something only tech support might handle.

Things started to change in 2014, when Venmo, a unit of PayPal, turned to Plaid. Until then, Venmo required new users to provide bank routing numbers, and the whole sign-up process could take several days. "It's not what anyone expects out of a financial service, or really any service," John Pitts, Plaid's global head of policy, says of the old arrangement.

Plaid changed that, verifying and linking accounts in seconds instead of days. It used its screen-scraping technique to log into bank apps—as if Plaid were the customer—and surface the data back to Venmo. (Plaid says it used screen scraping back then because APIs weren't available. A Venmo representative declined to comment.)

Venmo's popularity soared. Plaid was in business. ►

**The Plaid Model**

The company operates a network used by many of the most popular financial apps on the planet. Here's how it works.

1 Users sign up for an account on an app that uses Plaid, such as Venmo, Dave or Chime.

2 They are prompted to select their financial institution from a list.

3 The consumers enter their username and password, granting Plaid access to their data.

4 Plaid shares the data—say, an account balance—with the third-party app.

5 The third-party app pays Plaid a fee for making the connection.

6 Users can disconnect their data from these apps or delete it from Plaid at any time.

**Source**: Plaid

**AS FINTECH APPS BEGAN** to proliferate, banks started realizing something important was happening. A lot of the traffic on their websites and mobile apps wasn't coming from individual customers. Some was coming from bad actors hoping to pilfer data or something worse. Some was coming from companies like Plaid looking to help fintechs build legit businesses. The rest (a third, at best) was coming from actual bank customers.

Banks were fuming. Fintechs—aided by Plaid and other so-called data aggregators such as MX Technologies, Evestnet's Yodlee and Mastercard's Finicity—seemed to be muscling in. With their help, customers were turning to a bevy of flashy startups for help with payments, investments, savings and even home loans—the very things banks offered. Who knew where it might end? And though Plaid has always promised that it encrypts and safely stores this data, the idea that bank customer usernames and passwords were floating around in the ether terrified many executives.

For its part, Plaid says it links a bank account to an app only when a consumer asks the company to do so and insists that these outside apps receive only the data that's pertinent to their specific business need. These days, Plaid says it also provides an online portal for consumers to manage those connections and shut down any they no longer deem necessary.

At an industry conference in 2017, Dimon didn't mince words. He warned that any security breach at a third-party service wouldn't be his problem. JPMorgan, he told investors, wasn't on the hook if any of his customers' money got stolen. "If you have left your money at a bunch of these places and your bank passcodes, tough shit," Dimon said.

Around that time, Capital One, PNC and other banks began blocking Plaid from accessing their servers. It was war. Plaid counterattacked, urging people to tweet directly at their banks to defend third-party apps. Hundreds of Twitter users have since told banks to stop blocking access and open up to third-party apps. The hashtag: #protectdataaccess.

Both sides soon realized something had to give. By 2017 about a third of US consumers were using some fintech service, up from 17% two years earlier, according to an analysis by consulting firm EY. Consumers' affinity for the services wasn't diminishing, and Plaid wasn't going away. But banks were adamant that the practice of screen scraping come to an end.

JPMorgan, Capital One and other banks ultimately inked data-sharing agreements that ensure Plaid uses APIs to collect customer information. In many cases, the agreements limit the types of data an outside app can see—a stock trading app, for instance, doesn't need the interest rate on your mortgage—and allow banks to show consumers exactly how they're permitting their data to be shared, so they can revoke that access if they decide to do so.

Ravi Govindaraju, JPMorgan's head of connected banking for consumer and community banking, said in an emailed statement that the company "eliminated screen scraping and transitioned to APIs to give consumers better security, visibility and control." A Capital One spokesman said that all companies should be subject to the same oversight and security standards given "consumer-permissioned data sharing has come a long way, but policies and best practices aren't consistent across the board."

But not everyone is on board. PNC CEO Bill Demchak slams the practice of screen scraping, and the bank is embroiled in a yearslong lawsuit it brought against Plaid over its early practices. "PNC is committed to enabling our customers to use the financial apps they choose in a safe and secure manner," a PNC spokesman said in an email. "On occasion in the past, PNC has had to temporarily pause data aggregator access via screen scraping to help ensure the safety and security of PNC's customers' financial information and accounts, or to support continued access for our customers logging in to PNC online banking or our mobile app."

In a statement, Plaid said it denies all the allegations in PNC's trademark infringement suit. The company says it uses screen scraping only when it can't access APIs, and, to be sure, screen scraping connections are typically more costly and less reliable than those fashioned from APIs.

Still, the company says screen scraping is sometimes necessary, such as for small banks that can't afford to develop APIs but whose customers still want to be able to use fintech apps. Ginger Baker, head of financial access at Plaid, argues that people should be free to use their personal data however they want. For many, that means opting for financial apps. "Our larger commitment is to the consumer's right to their financial data," Baker says. "And that commitment trumps and takes precedent."

> **"Visa's seal of approval changed the way people were thinking about us. That was a huge accelerant"**

**PLAID'S BIG MOMENT** came in January 2020. Visa, which has been around since 1958, shocked Wall Street with its blockbuster deal to buy the company. Banks took notice. By that point, Plaid had helped 200 million users link their accounts to outside apps. Buying Plaid was a way for Visa to get in on the future of open banking.

"Visa's seal of approval changed the way people were thinking about us," Perret recalls. "That was a huge accelerant." Covid-19 added even more fuel to the fire. Along with working from home and Zoom calls, financial apps became symbols of the pandemic. With branches shuttered, banks that were once skeptics turned to Plaid, aiming to get data flowing in both directions—from banks to fintechs but also from fintechs to banks. Banks wanted to be able to surface customers' data

from all of their third-party accounts in their own apps.

The banking industry also hedged its bets by drawing up a platform of its own. Eleven banks, including JPMorgan, Citigroup and Wells Fargo, along with several other big financial players, banded together for a project code-named Hooli, which just happens to be the name of a fictional Apple-Google mashup on HBO's *Silicon Valley*. (Bankers involved in the project say the name was in fact short for "Hooligans.")

The business that resulted in 2020, ultimately called Akoya LLC, is a single API hub that banks, fintechs and data aggregators such as Plaid can use to avoid having to sign dozens or even hundreds of one-off data-sharing agreements. Anil Mahalaha, an Akoya executive with the title "chief evangelist," says the company's technology reduces the cost of managing multiple data relationships.

That year, at the US Department of Justice, antitrust experts were sizing up the Visa-Plaid deal. Visa, they learned, had been considering buying Plaid for several years. The payments giant, the DOJ alleged, was worried Plaid might grow into a serious competitor—and had decided to take it out while it could. Visa said Plaid complemented, and didn't compete with, its business.

A Visa executive's sketch of Plaid as an undersea volcano, uncovered in the DOJ's investigation, revealed that the buyer saw hidden value in newer Plaid tools that detect fraud, verify identities and manage finances. Only the tip of the volcano, showing a small portion of Plaid's current business, was readily visible.

The DOJ sued to block the transaction in late 2020. In January 2021, Visa and Plaid abandoned their proposed tieup, ending the multibillion-dollar deal.

Perret bounced back. Three months later he disclosed that Plaid had raised $425 million from several prominent investment companies, including venture capital firms Altimeter Capital and Andreessen Horowitz. The financing round valued Plaid at $13.4 billion, more than twice what Visa was going to pay for the company. (Bloomberg LP, which owns *Bloomberg Markets*, is an investor in Andreessen Horowitz.)

The message all those billions of dollars sends: No one can ignore the new realities of open banking. More and more, consumers want what they want when they want it.

**PERRET COULD SENSE** something was up. It was early March, and the problems at Silicon Valley Bank were starting to snowball. He had an unusual seat for the banking chaos of early 2023. Using Plaid's own systems, he could see how startups that banked with SVB, including fintechs, rushed for the exits as the lender began to teeter. After hurriedly moving deposits to other banks, these companies turned to Plaid to make sure they could still handle basic business functions such as making payroll. Perret ordered employees to stress-test Plaid's systems and ensure customers got what they needed.

There were no Depression-era lines, no faces of anxious depositors. This was something new: a digital bank run, spurred on by social media and conducted via smartphones and apps.

Federal authorities, and everyone else, are learning that newfangled digital banking—so quick, so easy—carries a new set of risks. Yes, people can deposit checks, apply for loans and do much more with a few taps on a smartphone. But they also can use those tools to stage a run on a major bank.

That timeless equation in finance—risk versus reward—is something Perret will have to master in the new era of open banking. Although open banking's benefits for consumers seem clear, could there be unforeseen consequences that won't be revealed for years? The banks, for now, have mostly come around to this new era, and the US Consumer Financial Protection Bureau is drawing up rules for how personal financial data can be handled and who's responsible if something goes wrong. No one can afford to stand still.

Everyone is freaked out by cyberattacks, identity theft, fraud and other threats. So Plaid is busy pushing beyond the connections business it's long been known for and spinning up whole new lines of business dedicated to helping banks and fintechs alike protect themselves.

That means Perret has more than enough on his mind for now. No one cares about plumbing—until it stops working. Plaid can't afford to let that happen. "We're still in the early innings," Perret says. "Every company is a fintech company. It's just a question of if they've gotten there yet." ●

---

Surane reports on finance companies for Bloomberg News in New York.

# A Warehouse

Parkfield Industrial Estate in London

# Windfall

One of Blackstone's best real estate trades required getting to know some of Europe's scruffiest properties

By JACK SIDDERS

PHOTOGRAPHS BY CARLOTTA CARDANA

At 7:15 a.m., David Ebbrell scrambled up a ladder and onto the roof of a warehouse in Germany's industrial hinterlands.

It was pitch-dark, the wind was whipping, and he didn't care for heights. "It was petrifying," he says.

Ebbrell's company, M7 Real Estate Ltd., has sent scouts to hundreds of remote places across Europe and the UK. On that December morning in 2014, Ebbrell was in Korntal-Münchingen, a town of about 20,000 outside Stuttgart. At this battery storage building, he took an old-school approach. He was checking its roof by walking across it—and hoping for the best.

M7 buys and sells an unglamorous and long-neglected kind of property: small urban warehouses near cities. They're the buildings around auto body shops and junkyards, the ones you might drive past after exiting the highway, places where you'd see a rat or two scurrying at dusk. In London, where M7 is based, warehouses are often referred to, with British understatement, as sheds—as in the kind you might find in your backyard.

Over decades, Ebbrell and his fellow "shed heads" put together reams of binders, complete with photographs—the *Encyclopedia Britannica* of out-of-the-way warehouses. They cataloged essential facts that couldn't be found elsewhere: where sheds were situated, who owned them, how much tenants paid in rent and when their leases expired, not to mention their roofs' structural soundness. M7 staffers later digitized this information, creating a database that made M7 a go-to company in the warehouse business.

Over the past five years, M7 has struck up an unlikely, and lucrative, partnership with one of the biggest names on Wall Street: Blackstone Inc. Some of its executives were with Ebbrell on that cold morning in Germany and have been on many visits since.

Blackstone, like other investment companies, was looking for new, and overlooked, assets. Institutions such as pension funds and endowments invest with private equity firms to find these uncut gems because they're eager to diversify their portfolios of stocks and bonds. M7's venture with Blackstone shows the lengths Wall Street will go to find these investments—and the need for fresh data, in this case cobbled together with software and shoe leather, to exploit these opportunities successfully. "Real estate has been quite old-fashioned, conservative and slow to catch up with the use of modern technology," says Ilkka Tomperi, chief operating officer of CapMan Real Estate, which operates in Scandinavia. "It isn't traded on a screen." New information, analyzed by data scientists, allows companies "to make better investment decisions and to get an edge," says Tomperi, who's also a professor at Aalto University in Finland.

With M7's help, Blackstone created a company that became Europe's largest owner of warehouses, 1,700 across the UK and Europe. Big institutions need to write big checks to make a difference in the performance of their portfolios. "If you like something, don't just do a little bit of it," says Kathleen McCarthy, Blackstone's global co-head of real estate.

But in this case, buying a lot was harder than it sounds. Operating a small warehouse, or buying and selling one, might well be profitable for an individual or a small family business. But could a giant private equity fund buy enough of them, cost-effectively, to improve its returns? In business school speak, could the company do it "at scale"?

Until now, the answer was no. That's why big real estate investors focused on huge office towers, malls and, when they did own warehouses, the vast distribution centers used by the likes of Amazon.com Inc. It can take just as long and cost just as much to find and vet a property selling for $1 million as it can for one that fetches $100 million. Ask anyone who's bought a house lately. So for the big shots, small warehouses had been "uninvestable."

But great fortunes await those who find a way in. "What we had was better data than anybody else," says Ebbrell, M7's chief executive officer. "So we could buy a €2 million estate with the same level of efficiency that Blackstone could buy a €500 million office tower. It became a machine."

Wall Street used a similar approach to invest in small apartments and single-family homes, which had been the province of families and moonlighting would-be entrepreneurs. Using digitized data, investors including Blackstone, Colony Capital and Starwood Capital Group gained an edge on the traditional buyers of single-family and small multifamily rentals. Of course, there are risks to parting with tradition. So-called iBuyers, including Opendoor Technologies Inc. and Zillow Group Inc., used software to rapidly buy and sell residential houses in the US. They ended up with devastating losses. And vacancies are soaring in the shaky office market. Still, warehouses are likely to hold up far better than emptied-out workplaces because of people logging in from home.

For now, Blackstone's warehouse-buying spree has been a success, particularly for early fund investors who've already

cashed out of its shed-owning funds. The whole operation certainly achieved scale. The properties span 15 million square meters, almost five times the size of New York's Central Park. Last year they were valued at €21 billion ($22.6 billion) when investors in Blackstone's funds were offered a chance to take their winnings or reinvest with the Wall Street company. It was one of Blackstone's biggest real estate transactions ever, and the largest that didn't involve the takeover of a publicly traded company. It may well be one of its most profitable.

Ebbrell

**EBBRELL WAS BORN FOR** the warehouse business. He grew up near Birmingham in Britain's post-industrial West Midlands region. Still in grade school, he worked for a friend's father who was a real estate investor. He was hooked, mostly because his mentor had access to a company car, a racy Ford Sierra RS Cosworth. Ebbrell signed up for a real estate degree at Nottingham Trent University, a former polytechnic college, the kind that specialized in vocational education and training.

With his open-collared shirts and jaw framed with light stubble, Ebbrell, 47, has a down-to-earth manner. It's common in the shed trade, which doesn't traditionally attract the Ivy League/Oxbridge private equity type. He started in the provinces, working as a leasing broker in Prague in the 1990s. There he learned the ins and outs of renting warehouse space for multinationals such as Tesco Plc. The grocer was among the many eager to expand in eastern Europe after the fall of the Berlin Wall.

In 2009, after a series of warehouse-related real estate jobs, Ebbrell joined forces with other shed specialists to form a company. They called it M7 because the seven partners had been drinking at a Munich bar during a real estate conference in October 2008, after the collapse of Lehman Brothers in the global financial crisis. (The "M" stands for Munich.)

They couldn't work for other companies yet because of noncompete agreements. Oli Farago, the company's chief technology officer, began the laborious process of digitizing the thousands of records they'd amassed. "We had six months where we couldn't talk to anyone else," Farago says. "There are only so many times you can go to the pub."

M7 called the software system Coyote. It was an inside joke. In their world, junior hires who do the grunt work of going far and wide photographing warehouses are known as "road runners," after the bird who outflanked the hapless coyote in the mid-20th century Warner Bros. cartoon. The database let them quickly identify the properties that would be worth buying and rule out those that made no financial sense. In the early 1990s, buyers might have had to examine 100 properties to find one worth an investment. With Coyote, Farago says, it was more like 1 in 20.

Years later, Wall Street caught on to the value of urban warehouses. With the rise of online shopping, they were essential to the often challenging "last mile" of delivery, the one that brings orders to a customer's door. All that stuff people order on Amazon has to be stored somewhere.

At the same time, developers were buying up industrial property in cities and turning it into luxury apartments. Shed owners were suddenly sitting on gold mines. They could lease their buildings for top dollar to a company that needed them for internet commerce. No one was building more sheds, so they had all the leverage. And even if they couldn't find a tenant, the owner could find a developer who'd turn the building into pricey condos. (Of course, this same dynamic has led to skyrocketing rents, making life hard for small businesses and renters in London and every other desirable city.) Warehouses were no longer a fringe part of Blackstone's real estate portfolios; they were the main event.

M7 started traveling in rarefied circles. In March 2016, the company threw a party at a real estate gathering in Cannes on the French Riviera. In a penthouse suite, on the famed boulevard that runs along the waterfront, the M7 hosts drank Champagne with executives in bespoke suits. The suite was filled with boldface Wall Street names: Blackstone, Goldman Sachs Group, KKR and Oaktree ►

> **Blackstone was ready to bet big. The company had just made a score in warehouses**

Capital Management. The shed heads, who'd grown up quaffing pints at the corner pub, had arrived.

M7's Coyote system had, in particular, caught the eye of an up-and-comer at Blackstone named Peter Krause. Having just turned 30, he'd been newly appointed to oversee industrial investments for Blackstone and saw the potential in small urban warehouses. At the time, in an unpredictable market with few institutional owners, most urban landlords focused on keeping their buildings occupied, rather than charging the highest possible rent. Krause wanted to buy properties whose leases were due to expire. He was convinced the market rate for rent was much higher. M7's data, along with Blackstone's, would let the company outbid others and still make money. It would also enable Blackstone to buy these warehouses quickly and at the scale attractive to institutional investors. "Peter is the mastermind of the whole thing," says his boss, James Seppala, head of European real estate.

On New Year's Eve in 2016, Blackstone and M7 hammered out an agreement. M7, with its knowledge and software, would earn fees for buying and managing the properties for Blackstone, as well as bonuses if they increased in value.

Blackstone was ready to bet big. The company had just made a score in warehouses. In 2017 it sold its industrial property company, called Logicor, to China's sovereign wealth fund for €12.25 billion, in what was then the biggest real estate deal in Europe. Logicor focused on large warehouses. But, in the course of buying them, it also found itself owning small ones.

M7 and Blackstone stood on opposite sides of a cultural divide. Unlike the shed heads, the Blackstone execs tended to have pedigrees. Krause and Seppala had degrees from Harvard University. Krause had two, in fact, one from Harvard Law. He'd joined the company on the Monday after his Friday New York state bar exam.

Back at M7, Ebbrell remembers the moment he knew his world had changed. He'd joined Anthony Myers, Blackstone's real estate chairman for Europe, on a plane for a warehouse tour. It was commercial, not private, and the destinations were gritty. Ebbrell wore jeans and sneakers. Myers, in his jacket and penny loafers, looked the shed head up and down and said: "Pete said it was casual dress for the tour, but I didn't realize it was that casual."

**STARTING IN 2017,** Blackstone hoovered up properties for its real estate funds. Its president, Jon Gray, called it the company's "highest conviction strategy." Of 220 deals, only 20 were large portfolios; the rest were of a small scale rarely seen on Wall Street. Blackstone once bought a warehouse from a family-owned construction company in Dublin for €1 million, one of the tiniest real estate purchases ever to go before its investment committee.

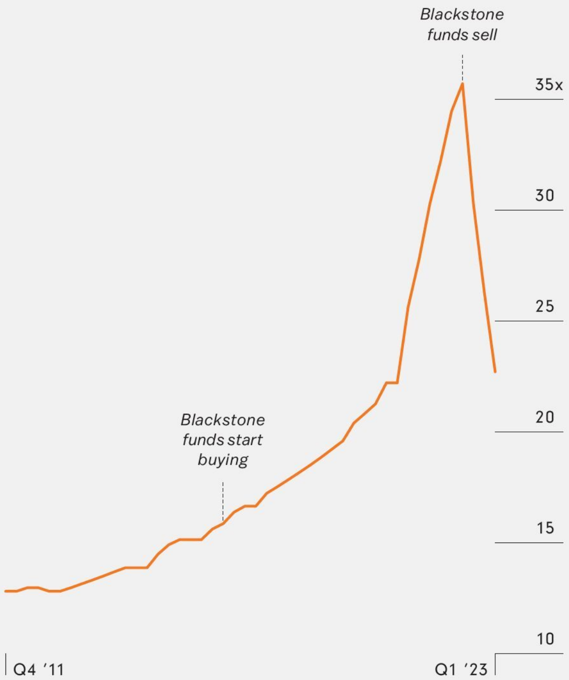
Blackstone gathered up the 1,700 properties into its own company, which it called Mileway, a reference to that all-important "last mile" of delivery. For example, it owned warehouses where chefs prepare food for Wendy's and PizzaExpress restaurants.

As Mileway grew, the Blackstone-M7 venture gathered more data, making its investment decisions more efficient. If the managers needed to replace a boiler, for example, or a roof, they didn't need to haggle; they already knew roughly what it cost. They could commit within days, instead of weeks. One broker who worked on the sale of hundreds of urban warehouses to Blackstone—and requested anonymity to discuss a major client—estimates that a negotiation with the company took as little as a third of the time of other potential buyers. Rivals could be left flat-footed.

In London, one property shows how the business works. It goes by a grand-sounding name, Parkfield Industrial Estate. But it wasn't much to look at when Ebbrell first inspected it with a team from Blackstone in 2017. It was a collection of low-slung brick buildings, their roofs packed with asbestos, near yards piled with scaffolding.

**Hot Properties**

Price-to-rent multiple for purchases of urban warehouses in Europe



**Source**: Bloomberg analysis of Green Street data

But the location was ideal. Wedged between two railroad tracks in London's Battersea district, south of the Thames, it's only 3 miles from Big Ben, the clock tower in the heart of London, within sight of office towers. Today, Parkfield's newest warehouses have spotless gray steel walls and a blue roof, along with LED lighting and an environmentally friendly boiler. Think of an iPhone turned into an industrial space.

The Caffè Nero chain keeps sacks of Brazilian coffee beans inside. It also roasts them, the sweet aroma wafting from an open door. The chain is so committed to the site that it's invested in special trucks small enough to squeeze beneath the low-slung rail bridge that marks the estate's entrance. Five years ago, rents hovered just above £10 ($12.37) a square foot at Parkfield. Blackstone is now asking more than £35.

crucial facts, which aren't known, such as how much Mileway paid for capital improvements. But data from real estate research firm Green Street show that doubling investors' money was more than possible. Rents in major markets, such as London, have jumped at least that much since Blackstone started buying, as have the prices investors are willing to pay, relative to a property's rent. Even though the market has cooled over the past year, "it has been an exceptional trade for Blackstone," says Green Street analyst Peter Papadakos.

M7 got a windfall, too, because Blackstone had brought its operations in-house two years before and paid its partners tens of millions of dollars, according to people familiar with the arrangement. As manager of the funds, Blackstone would likely have reaped even more on the sale of Mileway. The companies declined to comment on the payments.

Blackstone's Swan Industrial Estate, where chefs prepare food for Wendy's and PizzaExpress

**BY 2022, FIVE YEARS** after Blackstone started to invest in urban warehouses, it was time for its original funds—primarily its fifth and sixth European offerings and its eighth global fund—to cash out of Mileway. The company declined to comment on financial details. Publicly available records suggest that Blackstone bought the warehouses for an estimated €16 billion. Filings show that the company typically finances 65% of its real estate purchases with debt. If so, the funds would have invested €5.6 billion. Blackstone has said it sold the properties for £21 billion. That would indicate a gain of €5 billion after repaying about €10.4 billion in debt. In other words, investors who cashed out may have almost doubled their money in only five years.

The deal's actual profit is likely to be lower, based on

The game isn't over. Blackstone essentially sold the property to other funds it controls. Many institutions chose to reinvest in those vehicles. In effect, Blackstone still has an open bet on the Mileway warehouses.

Those who've already taken their money out can be assured of one thing. The original funds announced the sale on Feb. 15, 2022, nine days before Russia invaded Ukraine, triggering a global property downturn. In real estate, of course, two things are key: location and timing. Those who cashed out then certainly had both. ●

---

Sidders is a senior reporter covering real estate for Bloomberg News in London.

# When in...
# Miami

By FELIPE MARQUES

ILLUSTRATION BY PETER OUMANSKI

What's it like to live and work in Miami? Oren Alexander, co-founder of the luxury real estate brokerage firm Official Partners, gives his insider take on life in the South Florida hot spot to *Bloomberg Markets*. The interview has been edited for clarity and length.

**What's the best place to go out for breakfast?**

Pura Vida in Sunset Harbour. Great place to bump into friends, colleagues and clients.

**Where do you always bring visitors from out of town?**

Joe's Stone Crab. It's a Miami institution that I've been going to my whole life, so they treat me like family. Or, if [my visitors] like sports and it's basketball season, I'm a huge Miami Heat fan and love going to the games. The atmosphere is unlike anything else, especially in the playoffs. If it's in the fall, I'm a big Miami Dolphins fan, so I will take them to a game.

**What's your work commute like?**

I live, work, eat and spend most of my time on Miami Beach. I'm thankful my commute to my office is less than 10 minutes.

**What's one local custom you'd like the rest of the world to adopt?**

There's a great work-life balance in

Miami. With perfect weather year-round, there's a universal understanding that you should take the time to enjoy it.

**Where's the best place to go for a business lunch?**

Estiatorio Milos is the perfect business lunch.

**What's one essential thing that everyone who lives here absolutely needs to know?**

BOULEVARD HOTEL
STARLITE HOTEL
SHOP

One thing you won't be able to escape is traffic. While the mass influx of people over the last two years has done amazing things for Miami, one thing that has also increased is traffic. Thankfully there are other ways to get around, one of my favorites being by boat.

**Where do you go when you want to treat yourself to something truly special?**

When I need a break, I escape to the Bahamas. With Bimini being less than 50 miles away, I usually take my boat and cross in about an hour. Once I'm there, I feel relaxed and get to do some of my favorite activities, like spearfishing.

**What's the most frustrating thing about working and living here?**

During peak tourist season, you're competing with a lot of people to get reservations, tickets to special events, et cetera. It's all about knowing the right people and where to go to avoid those situations.

**Where do you take a date you really want to impress?**

Going to dinner by boat is a great date night that makes Miami unique. You can go to a concert at the basketball arena [the Kaseya Center] and then to Zuma.

**What's the culture of tipping waitstaff and other service personnel?**

Miami Beach is based on tourism and entertainment. Tipping is how most employees in these industries earn a living.

Be generous, and you will usually get great service.

**If you're traveling, how can you instantly recognize a person is from here?**

That's difficult to answer because Miami is a true cultural melting pot. People from Miami, much like the city itself, are vibrant and like to have fun. But it's usually the accent that I can catch.

**What's one thing you would change about this city if you could?**

I would get rid of scooter and jet ski rentals and the party charter boats. It's a bad look for our city.

**What misconception about your city do you hear most often?**

Miami was always known as a place for second or third homes, but over the last few years Miami has become a primary home destination for many.

**Where do you go to hear music?**

Casa Tua on Thursdays has great live music.

**What's the best gift or souvenir to buy here?**

Miami has a world-renowned art scene and draws some of the best galleries every year during Art Basel. Artwork would be a great gift to buy here.

**Is there a market or store that captures the city's essence?**

Bal Harbour Shops encapsulate the luxurious essence of Miami with a tropical vibe.

**What's your favorite cultural institution?**

Faena Art has done an incredible job in bringing great culture to Miami Beach. ●

---

Marques is the Miami bureau chief for Bloomberg News.

JA HELPS
TODAY'S YOUNG PEOPLE
BECOME TOMORROW'S ADULTS
By Inspiring
WORK AND CAREER READINESS
ENTREPRENEURSHIP
AND FINANCIAL LITERACY
NADE
SOLD

Junior Achievement®

Inspiring Tomorrows™

Junior Achievement does all this with proven learning experiences in schools across the country.

But we can't do it alone. Find out how you can help.

VISIT JA.ORG

# A Compendium of Functions—New or Featured In This Issue

## FEATURED IN THIS ISSUE

| | | |
|---|---|---|
| **NSTM** | Groups news search results into themes | 36 |
| **AID** | Provides summaries of what's happening with a stock, index, currency, exchange-traded fund or tickerized portfolio | 36 |
| **DS** | Search across 200 million company documents | 36 |
| **TREN** | Shows the companies and topics getting the most media attention and reader interest | 36 |
| **APPS** | Test-drive the Crypto Fundamentals application by Token Terminal and other third-party apps | 40 |
| **KPIC** | Lets you analyze trends in the most significant key performance indicators across a peer group | 42, 44 |
| **BDVD** | Shows dividend forecasts from Bloomberg analysts | 42 |
| **ECST** | Displays current and historical economic data for a selected country | 42 |
| **MODL** | See a detailed breakdown of a selected company's estimated and actual operating metrics, business segments and more | 44 |
| **CMAP** | Map facilities of a selected company along with other data sets | 44 |
| **GPHA** | Chart Heikin-Ashi candles | 46 |
| **STDY** | Serves as a gateway to technical studies and provides tools you can use to create your own custom studies | 46 |
| **GP** | Provides suggested charts such as Flow & Option Sentiment for a selected index | 49 |
| **ETF** | Find ETFs that match your criteria | 49 |
| **FTW** | Reveals which factors have historically or are currently moving equity returns | 49, 52 |
| **EQBT** | Automate rebalances of your model portfolio | 52 |

## NEW ENHANCEMENTS TO TRY RIGHT NOW

| | |
|---|---|
| **TLTS** | Tilts is a new function that displays the characteristic exposures, or tilts, of a selected fund, index, portfolio or stock compared to a benchmark or other investments, so you can evaluate different strategies. Run {IBM US <Equity> TLTS <GO>}, for example, and you can see that International Business Machines Corp. offers higher active exposure to dividend yield than the S&P 500. You can add securities in the Compare To field to evaluate their relative exposures. |
| **IB** | The Instant Bloomberg function has been enhanced to let you create internal-only forums and link them to new or existing communities, such as groups of colleagues you've created in {CMTY <GO>}. To create a new forum, run {IB <GO>}. In IB Manager, click on the Plus icon and select IB Chat. Tick the box for Make Persistent and then select Internal-Only Forum. For more on forum enhancements, go to {NSN RUCTJ4DWRGG0 <GO>}. |
| **IN** | The Bloomberg Index Browser has been enhanced with a number of new features. Run {IN <GO>}. You can now create and save custom views with the performance data that's most relevant for you. Use the View drop-down to select Add View, give the view a name and select the data you want. In addition, the Equity tab lets you track specific drivers of returns on the Factors subtab and investment opportunities under Thematics. |
| **ACTN** | Actionable Client Task is a function that lets Bloomberg Asset and Investment Manager (AIM) clients track cash tickets, evaluate details and identify problematic ones. Run {ACTN <GO>}, and you can filter your tickets to spot and correct nonstandard transactions. For more about AIM, go to {AIMH <GO>}. |
| **LEDO** | The Legal Documentation Manager now lets you add custom legal entities that don't have a company ID or Legal Entity Identifier (LEI). Run {LEDO <GO>}. |

Faster, better answers—24/7. <Help><Help> for Bloomberg Analytics

The BLOOMBERG PROFESSIONAL service ("BPS"), BLOOMBERG TERMINAL and Bloomberg data products (the "Services") are owned and distributed by Bloomberg Finance L.P. ("BFLP"), except that Bloomberg L.P. and its subsidiaries distribute the BPS in Argentina, Bermuda, China, India, Japan, and Korea. Bloomberg Tradebook is provided by Bloomberg Tradebook LLC and its affiliates and is available on the BPS. BLOOMBERG, BLOOMBERG PROFESSIONAL, BLOOMBERG MARKETS, BLOOMBERG NEWS, BLOOMBERG ANYWHERE, and BLOOMBERG TRADEBOOK, BLOOMBERG TELEVISION, BLOOMBERG RADIO and BLOOMBERG.COM are trademarks and service marks of BFLP or its subsidiaries. The information detailed within this document and all related information (whether oral or written) is provided for your information and discussion only. It is not a solicitation or offer to buy or sell any financial instrument, nor is it an invitation or inducement to engage in investment activity. Nothing in this document is designed to be, or should be treated as, advice. If you are in any doubt as to your obligations or seek advice, you should consult professional advisers. Bloomberg does not guarantee the accuracy or completeness of the content of this document. Bloomberg does not accept liability for any loss arising from use or reliance placed upon this document and its content. Information provided in this document should be treated as proprietary to Bloomberg. This communication is directed only at market professionals who are eligible to be customers of Bloomberg Trading Facility Limited, a limited company incorporated in England and Wales under Company No. 09019569, whose registered office is at 3 Queen Victoria Street, London, England EC4N 4TQ, United Kingdom, authorized and regulated by the UK Financial Conduct Authority No. 629485. No other persons may rely on this communication. Customer may not share, reproduce, publish, distribute or communicate this Proposal or information of any kind relating to these responses to any company, third parties or persons other than within Customer and only to such persons on a need-to-know basis in connection with this review. Certain features, functions, products and services are available only to sophisticated investors and only where permitted. BFLP, BLP and their affiliates do not guarantee the accuracy of prices or other information in the Services. Information available via the Services should not be considered as information sufficient upon which to base an investment decision. Communicated, as applicable, by Bloomberg Tradebook LLC; Bloomberg Tradebook Europe Ltd., authorized and regulated by the U.K. Financial Conduct Authority; Bloomberg Tradebook (Bermuda) Ltd.; Bloomberg Tradebook Services LLC. This communication is directed only to market professionals who are eligible to be customers of the relevant Bloomberg Tradebook entity. Neither Bloomberg Finance L.P. nor any of its affiliates is a Nationally Recognized Statistical Rating Organization (NRSRO) in the U.S. or an officially recognized credit rating agency in any other jurisdiction. Bloomberg's ratings have not been solicited by issuers, and issuers do not pay Bloomberg any fees to rate them or their securities. Customers should not use or rely on Bloomberg's ratings to comply with applicable laws or regulations that prescribe the use of ratings issued by accredited or otherwise recognized credit rating agencies. Bloomberg's ratings and related data are not investment advice or recommendations of an investment strategy or whether to "buy," "sell," or "hold" an investment. BDVD does not express an opinion on the future value of a security and does not provide recommendations to "buy," "sell," "hold," or enter into any transaction or other strategy. No aspect of the BDVD forecasts or data is based on a customer's individual circumstances. BDVD should not be considered as information sufficient upon which to base an investment decision. BDVD is offered where the necessary legal clearances have been obtained. Employees involved in BDVD may hold positions in securities included in the BDVD Services. For information on the BLOOMBERG PROFESSIONAL service, contact the sales office in your region: New York 212-318-2000, San Francisco 415-912-2960, Frankfurt 49-69-920410, Hong Kong 852-2977-6000, London 44-20-7330-7500, São Paulo 55-11-2395-9000, Singapore 65-6212-1000, Sydney 61-2-9777-8686, Tokyo 81-3-3201-8900.

June/July 2023, volume 32, issue 3, BLOOMBERG MARKETS (ISSN 1531-5061) (USPS 008-897) is published six times a year with issues in March, May, July, September, November and December by Bloomberg Finance L.P., 731 Lexington Avenue, New York, NY 10022, and distributed free to subscribers of the BLOOMBERG PROFESSIONAL service. POSTMASTER: Send address changes to Circulation, Bloomberg Markets, P.O. Box 1583, New York, NY 10150-1583. Periodicals postage paid in New York and at additional mailing offices.

©2023 Bloomberg L.P. Bloomberg reserves the exclusive right to reproduce or authorize reproduction of articles. Advertisers and ad agencies assume liability for all ad content.

FSC
www.fsc.org
MIX
Paper from responsible sources
FSC® C084269

**The FFM Quiz**

# The Future of Finance

By ELIZABETH ATTAH, CHARLES BOND
and PHILIP CAPONE

**WHICH FINANCIAL COMPANY** talked the most about artificial intelligence in the past two years? What's the best trading strategy for Bitcoin? Which global bank has the highest score for anticipating environmental risks? ¶ Test your knowledge of the latest finance industry developments with Bloomberg's Functions for the Market quiz. Then follow the steps to see if you had the correct answer (and learn a bit about how to tap into data and analytical tools in the process).

**1.** Which financial company talked the most about AI in the past two years on earnings calls and at other events?

- ☐ Lemonade Inc., a New York insurer
- ☐ Upstart Holdings Inc., an AI lending marketplace in San Mateo, California
- ☐ Omniq Corp., an AI solutions provider based in Salt Lake City

**Type "document search" in the command line of a terminal screen and click the DS match. The shortcut is {DS <GO>}. DS is an AI research platform that allows searching across 200 million company documents.**

**Type "AI" in the amber Search box at the top left and select it as the Smart Match.**

**Click the button below Source at the top right, choose Transcripts and hit Apply. Use the Industries drop-down to select Financials.**

**Click the More Trends button and the gray Companies tab. Click the top company for details of what it talked about.**

**2.** Which Bitcoin trading strategy has performed best this year?

- ☐ Buy and hold
- ☐ Commodity Channel Index strategy
- ☐ Bollinger Bands

**Type "Bitcoin" in the command line and select the XBTUSD Curncy match. Then type "backtesting" and select BTST. The shortcut is {XBTUSD <Curncy> BTST <GO>}.**

**Set the first date field to 12/31/2022.**

**Click the %Total column heading under Profit (Loss) to rank from best to worst.**

**3.** What event generated the most negative ESG coverage for Exxon Mobil Corp. in the past two years?

- ☐ Baytown refinery fire in Texas on Dec. 23, 2021
- ☐ Climate change deception lawsuits moved closer to trial on April 24, 2023
- ☐ Discrimination suit over nooses found at Louisiana plant on March 2, 2023

**Type "Exxon" in the command line and select XOM US Equity. Select GP from the menu of functions. The shortcut is {XOM US <Equity> GP <GO>}.**

**Type "ESG negative" in the Add Data amber box and select ESG News Count ES Negative. The scores are generated by a machine learning model trained by Bloomberg analysts to define behavior as positive, negative or neutral from an investor's perspective.**

**Change the start date to 01/01/2021. Note the spikes. Activate the News tool by clicking on News at the top center of the chart. Then click on a spike to open a window showing headlines from that day.**

**4.** Which global bank has the highest Bloomberg Environmental Score in relation to its peers?

- ☐ JPMorgan Chase & Co.
- ☐ UBS Group AG
- ☐ Deutsche Bank AG

**Type "JPMorgan" in the command line and select the JPM US Equity match. Type "relative ESG" and select the RV ESG match. The shortcut is {JPM US <Equity> RV ESG <GO>}.**

**Click the Env Percentile Score column heading to rank by environmental score. Bloomberg's proprietary scores are data-driven and fully transparent, allowing you to access both the methodology and the underlying data.**

*—With Pancras Beekenkamp*

Preqin's Top 10 Prime Brokers

1. Morgan Stanley
2. Goldman Sachs
3. JP Morgan
4. BoA Merrill Lynch
5. Credit Suisse
6. **Interactive Brokers**
7. UBS
8. Citi
9. BNP Paribas
10. Barclays

**For the third consecutive year, the number of Hedge Funds on Interactive Brokers' platform increased at a higher rate than any other leading bank or broker.**[1]

Interactive Brokers serves both organizations and individual investors.

To get better results, get a better platform.

The best-informed investors choose Interactive Brokers.

To learn how we can help grow your business,
call **+852 2156 7918** or visit

**ibkr.com.hk/hftop10**

or visit one of our other sites: ibkr.com.au • ibkr.com.sg

InteractiveBrokers
FOR INSTITUTIONS

This advertisement is not intended for residents of Mainland China and Japan. Interactive Brokers Hong Kong Ltd is regulated by the Hong Kong Securities and Futures Commission ("SFC"); Interactive Brokers Australia Pty Ltd is regulated by Australian Securities and Investments Commission ("ASIC") (AFSL 453554, ABN 98 166 929 568). Interactive Brokers Singapore Pte Ltd is licensed and regulated by the Monetary Authority of Singapore ("MAS"). [1] Interactive Brokers' platform increased at a higher rate than any other leading bank or broker, according to Preqin's Annual Service Provider Reports 2020-2022. Supporting documentation for any claims and statistical information will be provided upon request. Hedge Funds are highly speculative and investors may lose their entire investment. This advertisement has not been reviewed by SFC, ASIC or MAS.

04-IB23-1581CH1575-APAC

CARTIER
SWISS MADE

TANK FRANÇAISE
Cartier